THE VILLAGE AT JUNIPERO

MENIFEE, CALIFORNIA

DEV2022-006 (Major Plot Plan No. PLN22-0030)



ENTITLEMENT RESUBMITTAL
2/20/2023

HUMPHREYS & **PARTNERS** ARCHITECTS, L.P.
5339 Alpha Rd., Suite 300, Dallas, TX 75240 | 972.701.9636 | www.humphreys.com

PROJECT DESCRIPTION:

The Vilage at Junipero has 240 garden style apartment homes each with direct, completely private access garage. The main open space, which is on axis with the main entry driveway from Heritage Rd, provides a 2 story club house, a bocce ball court and a pool area with gazebos. In addition to the main courtyard, there are 4 other distinctly designed courts, with building unit entries exiting straight into the lawn or various outdoor amenities to include fire pits, barbq areas, tot lot and a dog park. Each unit is provided with a minimum of 100SF of Private Open Space.

OVERALL PROJECT DATA:

GENERAL LAND DESIGNATION:	8.1 - 14R	PROJECT ADDRESS:	JUNIPERO ROAD AND HERITAGE DRIVE MENIFEE, CA 92224
EXISTING ZONING:	MDR	APPLICANT:	CHRISTIANSEN AND COMPANY, keith@christiansenco.com
NET ACREAGE	17.2 AC	ARCHITECT:	HUMPHREYS AND PARTNERS ARCHITECTS, vely@humphreys.com
ACREAGE (GROSS LOT AREA) :	17.8 AC		
PROPOSED DENSITY:	13.95 DU/ NET AC	ASSESSOR PARCEL NUMBERS:	333-070-017, 333-070-019, 333-070-053
UNIT AVERAGE NET SF :	1,326 S.F.	FEMA MAP:	PANEL: 06025C2060G, ZONE: X
BUILDING COVERAGE:	+/-254,000 SF (+/-35% OF NT AC)	SCHOOL DISTRICT:	PERRIS UNION HIGH SCHOOL DISTRICT
TOTAL OPEN SPACE PROVIDED	+/-250,000 SF (+/-32% OF GR AC)	FOR ADDITIONAL SITE INFO AND LEGAL DESCRIPTION REFER TO CIVIL ENGINEERING EXHIBITS	

VICINITY MAP



OCCUPANCY & TYPE OF CONSTRUCTION:

RESIDENTIAL BUILDINGS:	AREA:	20,240 S.F. (EACH BUILDING)	R-2, TYPE V-B
CLUBHOUSE/ LEASING:	AREA:	8,380 S.F.	A & B, TYPE V-B

UNIT TABULATION:

UNIT NAME	UNIT TYPE	NET AREA(SF)	PRIV. OPEN SPACE EA.	APPROX. GARAGE AREA EA.	UNIT COUNT	PERCENTAGE	TOTAL AREA	% BREAKDOWN	PARKING REQUIREMENT PER ZONING CODE	
A1-U	1br/1ba	884	150 SF	360 SF	24	10.00%	21,216	10.00%	1.0	24
B1-L	2br/2ba	1,251	115 SF	340 SF	24	10.00%	30,024	50.00%	1.5	36
B1-U	2br/2ba	1,375	115 SF	540 SF	24	10.00%	33,000		1.5	36
B2-U	2br/2ba	1,102	150 SF	480 SF	24	10.00%	26,448		1.5	36
B3-U	2br/2ba	1,308	105 SF	224 SF	48	20.00%	62,784		1.5	72
C1-L	3br/3ba	1,469	130 SF	480 SF	48	20.00%	70,512	40.00%	2.5	120
C1-U	3br/3ba	1,547	110 SF	413 SF	48	20.00%	74,256		2.5	120
									GUEST (1:10)	24
									STAFF (1:1)	5
TOTALS					240	100.00%	318,240	100.00%		473

UNIT AVERAGE NET SF : 1,326 SF (NET AREA INCLUDES SQUARE FOOTAGE FROM EXTERIOR FACE OF ALL EXTERIOR FRAME WALLS THAT ENCLOSE A/C SPACE)

STORAGE REQUIREMENT: EACH UNIT HAS +/-16 SF OF STORAGE SPACE ACCESSIBLE FROM THE GARAGE AND LOCATED TYPICALLY UNDER STAIRS

PARKING SUMMARY:

	GARAGE PARKING	384	SPACES, IN 240 GARAGES
	SURFACE PARKING TYPE 1	121	STANDARD SPACES, NON ASIGNED, GUEST AND STAFF INCLUDED IN THIS NUMBER
	SURFACE PARKING TYPE 2	18	STALLS LOCATED IN FRONT OF GARAGES WITH AN 18' LONG DRIVEWAY
	TOTAL	523	
	(2% ACCESSIBLE PARKING PROVIDED FOR BOTH SURFACE STALLS AND GARAGES) STANDARD STALL SIZE 9'X18'		

TRASH: Design and capacity to be further refined, still awaiting Waste Management feedback and direction.
Currently providing: 4-cy bins per enclosure, 5 enclosures equally dispersed through the site.

EV stalls: Per 2022 CalGreen Section 4.106.4.2.2: This project will provide 5% EV w/ chargers,10% EV capable and 25% EV Charging receptacles. The total EV combined, as required per CalGreen will be 210 stalls. Distribution of EV stalls to be determined at a later time.

PARKING CALCULATION OF GARAGE AND SURFACE STALLS NEEDED TO MEET THE MINIMUM REQUIRED

UNIT TYPES	TOTAL OF EACH TYPE	GARAGE STALLS EA.	ADDTL. SURFACE STALL REQD. EA.	TOTAL PROV./REQ.
A1-U	24	1	0	24
B1-L	24	1	0.5	36
B1-U	24	2	0.5	48 *
B2-U	24	2	0	48 *
B3-U	48	1	0.5	72
C1-L	48	2	0.5	120
C1-U	48	2	0.5	120
GUEST PKG (1 PER 10 UNITS)				24
STAFF PARKING (1 PER EMPLOYEE)				5
	240			497

* 2 Bedroom units with 2 car garages exceed the minimum parking requirement by 0.5 stall but since it is in an enclosed private garage, that number is not counted towards the overall 1.5 per 2 Bedroom unit

OPEN SPACE SUMMARY:

PRIVATE OPEN SPACE	REQUIRED	100 SF	PER UNIT
	PROVIDED	+/- 115 SF	PER UNIT
COMMON OPEN SPACE	OPEN AREA 1	+/- 52,000	SF
	OPEN AREA 2	+/- 35,000	SF
	OPEN AREA 3	+/- 35,000	SF
	OPEN AREA 4	+/- 27,000	SF
	OPEN AREA 5	+/- 17,000	SF
	MISC.	+/- 48,000	SF
	TOTAL OPEN SPACE PROVIDED	+/- 250,000	SF

FOR SPECIFIC HARDSCAPE/SOFTSCAPE BREAKDOWNS PER OPEN AREA, REFER TO LANDSCAPE SHEETS

EXHIBITS PROVIDED:

CIVIL:

TTM-1, TTM-2 Tentative Tract Map
PGP-1, PGP-2 Preliminary Grading Plan
PWS-1 Preliminary Water, Sewer and Recycled Water Plan

LANDSCAPE:

L1.00 Landscape Cover Sheet
L1.01 Landscape Plan West
L1.02 Landscape Plan East
L1.03 Landscape - Dog Park/Plaza and BBQ
L1.04 Landscape - BBQ, Tot Lot
L1.05 Landscape - Pool Deck
L1.06 Parking Lot Tree Shading Plan
L1.07 Main and Secondary Entries
L1.08 Maintenance Plan
L1.09 CFD Maint. Plan West
L1.10 CFD Maint. Plan East
L1.11 Typ. Building Enlargement
L1.12 Fencing and perimeter wall exhibit
L1.13 Site Details
L1.14 Site Details

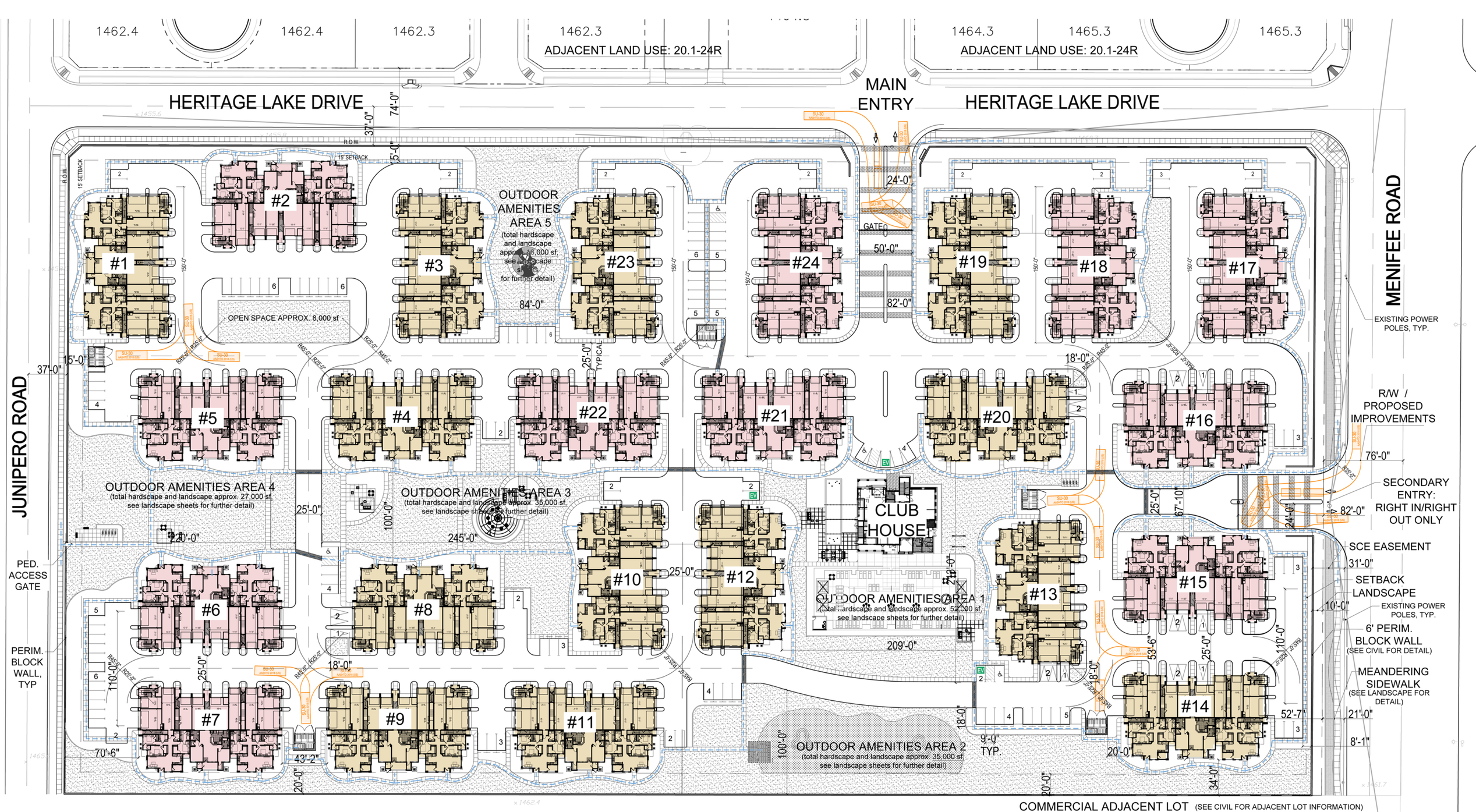
ARCHITECTURAL:

A-1 Project Information
A-2 Conceptual Site Plan
A-2.1 Emergency Access Diagram
A-3 Building and Unit Plans, Level 1, Spanish
A-4 Building and Unit Plans, Level 2, Spanish
A-5 Roof Plan, Spanish
A-6 Building Elevations, Spanish , Color 1
A-6.1 Building Elevations, Spanish, Color 2
A-7 Building and Unit Plans, Level 1, Tuscan
A-8 Building and Unit Plans, Level 2, Tuscan
A-9 Roof Plan, Tuscan, Color 1
A-10 Building Elevations, Tuscan, Color 1
A-10.1 Building Elevations, Tuscan, Color 2
A-11 Club House Plans, Level 1 and 2
A-12 Club House Elevations
A-13 Trash Enclosure Design
2 Colors and Materials Boards (11x14)

PHOTOMETRICS:

E-1 Site Photometric Calculations - A
E-2 Site Photometric Calculations - B
E-3 Site Photometric Calculations - C
E-4 Site Photometric Calculations - D

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NOTES:
1. For Emergency vehicle circulation/ hose pull diagram refer to Sheet A-2.1
2. Boundaries along Menifee Rd., Heritage Lake and Junipero Rd, all include proposed right of way dedications
3. TRASH: Design and capacity to be further refined, still awaiting Waste Management feedback and direction. Currently providing: 4-cy bins per enclosure, 5 enclosures equally dispersed through the site.
4. EV stalls: Per 2022 CalGreen Section 4.106.4.2.2: This project will provide 5% EV w/ chargers,10% EV capable and 25% EV Charging receptacles. Distribution through the surface and garage stalls will be determined at a later time, Currently showing 3 EV stalls with chargers near main court and pool amenities (EV) The total EV combined, as required per CalGreen will be 210 stalls.
5. STALLS: Typical Standard Surface Parking Space - 9' x 18'
6. SIGNAGE: Monument Signage shall be set back a minimum 3' from the ROW and drive aisles.
7. ------ ACCESSIBLE PATH OF TRAVEL (each building contains 3 ground floor units entered from the green space, and 7 upper floor units with individual stair entries.All ground floor units are on the site's accessible path of travel.)
8. ——— Service vehicles turnaround and vehicular stacking at Gates
9. ELECTRICAL METERS AND CONDENSER UNITS: For screening of mech. and elec. equipment, refer to landscape detail drawings

SPANISH STYLE
TUSCAN STYLE

A-2

THE VILLAGE AT JUNIPERO
MENIFEE, CALIFORNIA HPA# 2014141

CONCEPTUAL SITE PLAN
February 17, 2023

CHRISTIANSEN & CO.

HUMPHREYS & PARTNERS ARCHITECTS, L.P.
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ENTRY

HERITAGE LAKE DRIVE

MENIFEE ROAD

JUNIPERO ROAD

PED. ACCESS GATE

PERIM. BLOCK WALL, TYP

COMMERCIAL ADJACENT LOT (SEE CIVIL FOR ADJACENT LOT INFORMATI

OUTDOOR AMENITIES AREA 5
(total hardscape and landscape approx. 6,000 sf, see landscape sheets for further detail)

OPEN SPACE APPROX. 8,000 sf

OUTDOOR AMENITIES AREA 4
(total hardscape and landscape approx. 27,000 sf, see landscape sheets for further detail)

OUTDOOR AMENITIES AREA 3
(total hardscape and landscape approx. 35,000 sf, see landscape sheets for further detail)

OUTDOOR AMENITIES AREA 1
(total hardscape and landscape approx. 52,000 sf, see landscape sheets for further detail)

OUTDOOR AMENITIES AREA 2
(total hardscape and landscape approx. 35,000 sf, see landscape sheets for further detail)

CLUB HOUSE

FIRE ACCESS

RED CURB STOPS AT THE EXTENT OF THE 150' TRUCK ACCESS. TYPICAL AT ALL 150' + DEAD END DRIVEWAYS

xx' HOSE PULL DISTANCE

FIRE TRUCK ACCESS

A-2.1

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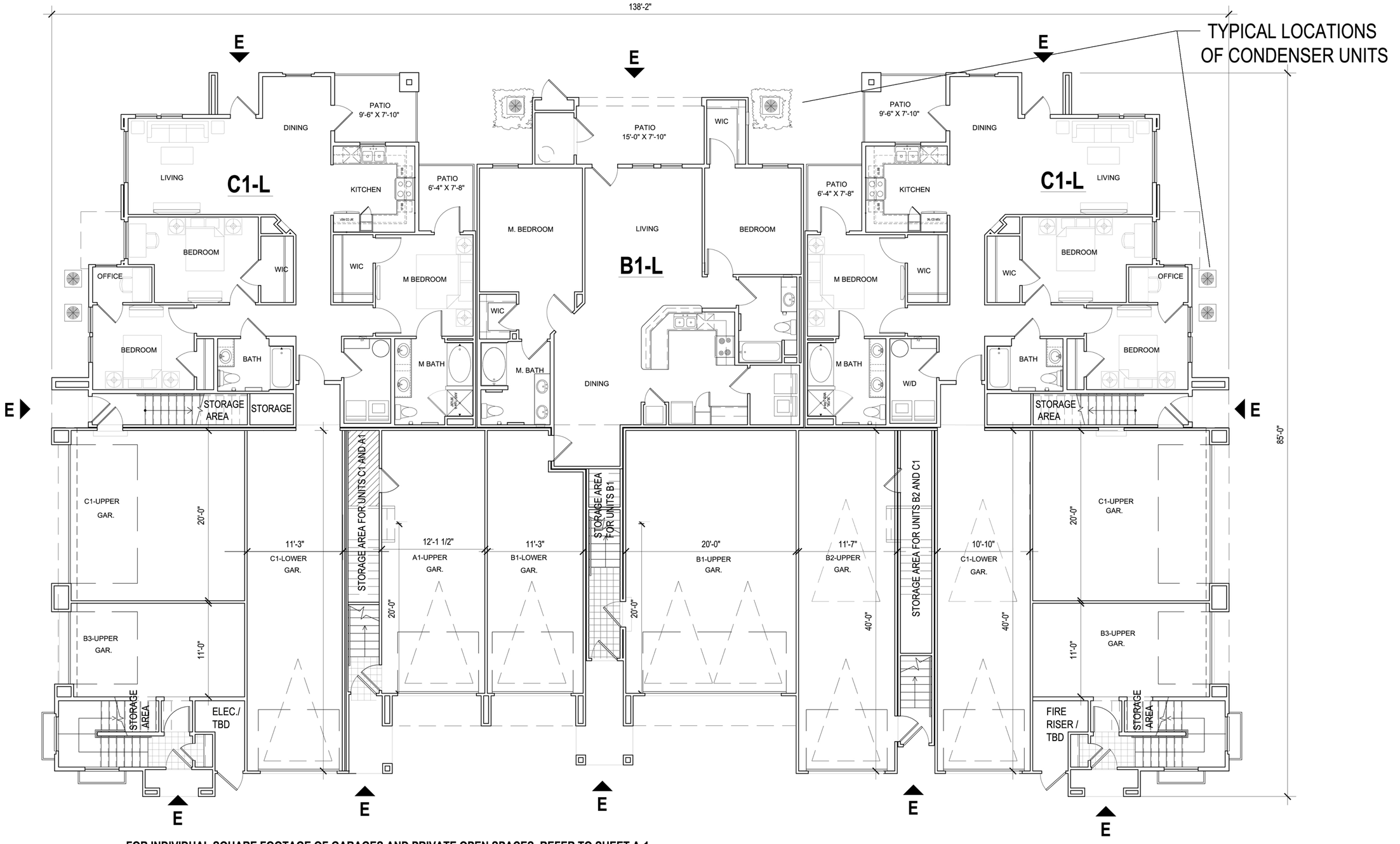
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EMERGENCY ACCESS DIAGRAM

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FOR INDIVIDUAL SQUARE FOOTAGE OF GARAGES AND PRIVATE OPEN SPACES, REFER TO SHEET A-1

SCALE: 3/16"= 1'-0" (24x36)

0' 4' 8' 16'

A-3

DEV2022-006 (Major Plot Plan No. PLN22-0030)

THE VILLAGE AT JUNIPERO
MENIFEE, CALIFORNIA HPA# 2014141

BIG HOUSE- LEVEL ONE, SPANISH

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0' 4' 8' 16'

A-4

DEV2022-006 (Major Plot Plan No. PLN22-0030)

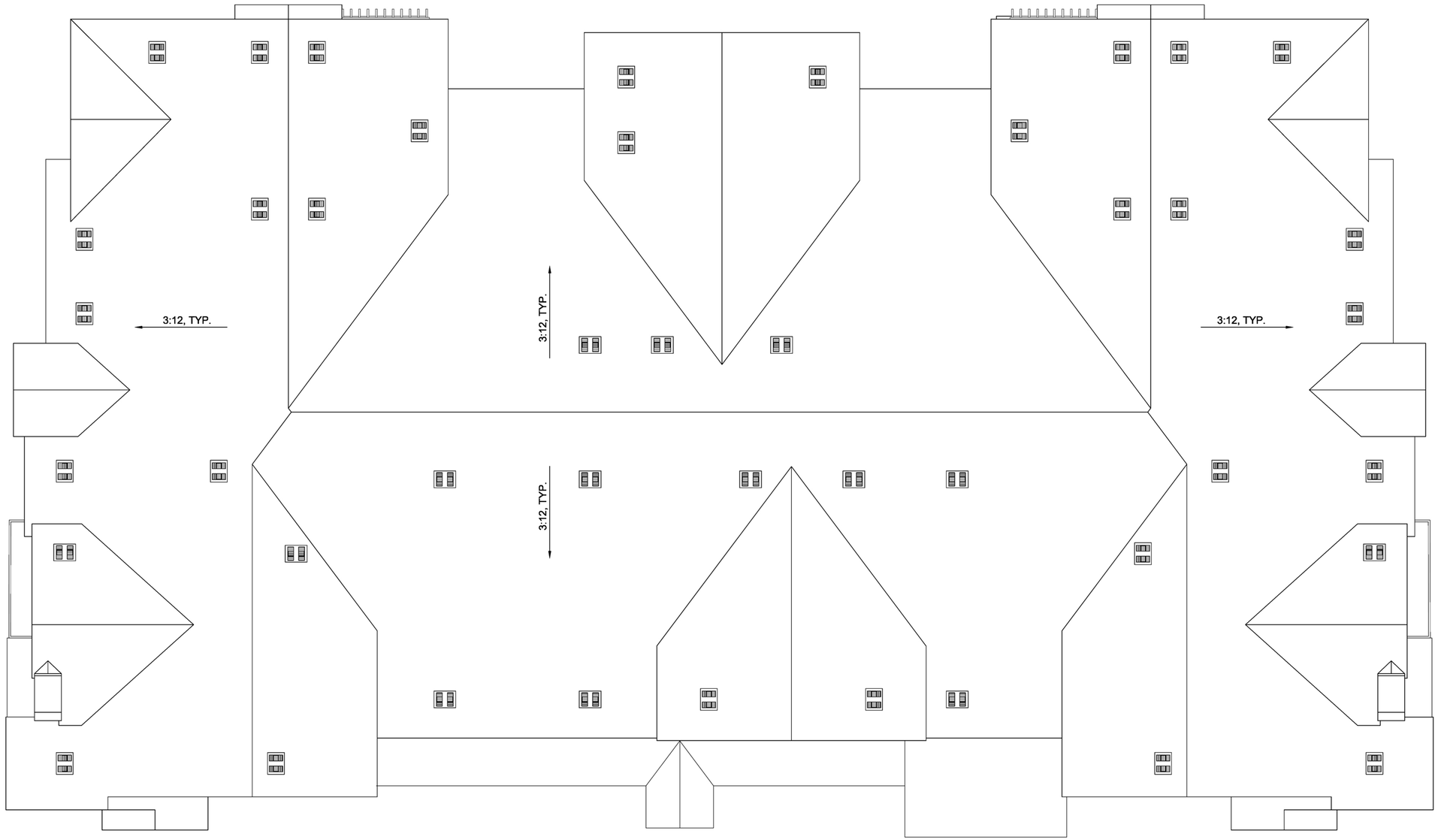
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BIG HOUSE- LEVEL TWO, SPANISH

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SCALE: 1/16"= 1'-0" (24x36)

0' 8' 16' 32'

A-5

THE VILLAGE AT JUNIPERO
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BIG HOUSE- CONCEPTUAL ROOF PLAN, SPANISH

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FRONT ELEVATION

PRELIMINARY LOCATION
FOR BUILDING SIGNAGE



SIDE ELEVATION



BACK ELEVATION

FOR SPECIFIC INFORMATION ON BUILDING COLORS AND MATERIALS,
REFER TO PHYSICAL "COLORS AND MATERIALS" BOARDS PROVIDED

SCALE: 1/8"= 1'-0" (24x36)

0' 4' 8' 16'

A-6

THE VILLAGE AT JUNIPERO
MENIFEE, CALIFORNIA HPA# 2014141

BIG HOUSE ELEVATIONS, SPANISH

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FRONT ELEVATION

PRELIMINARY LOCATION
FOR BUILDING SIGNAGE



SIDE ELEVATION



BACK ELEVATION

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0' 4' 8' 16'

A-6.1

THE VILLAGE AT JUNIPERO
MENIFEE, CALIFORNIA HPA# 2014141

BIG HOUSE ELEVATIONS, SPANISH

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FOR INDIVIDUAL SQUARE FOOTAGE OF GARAGES AND PRIVATE OPEN SPACES, REFER TO SHEET A-1

SCALE: 3/16"= 1'-0" (24x36)

0' 4' 8' 16'

A-7

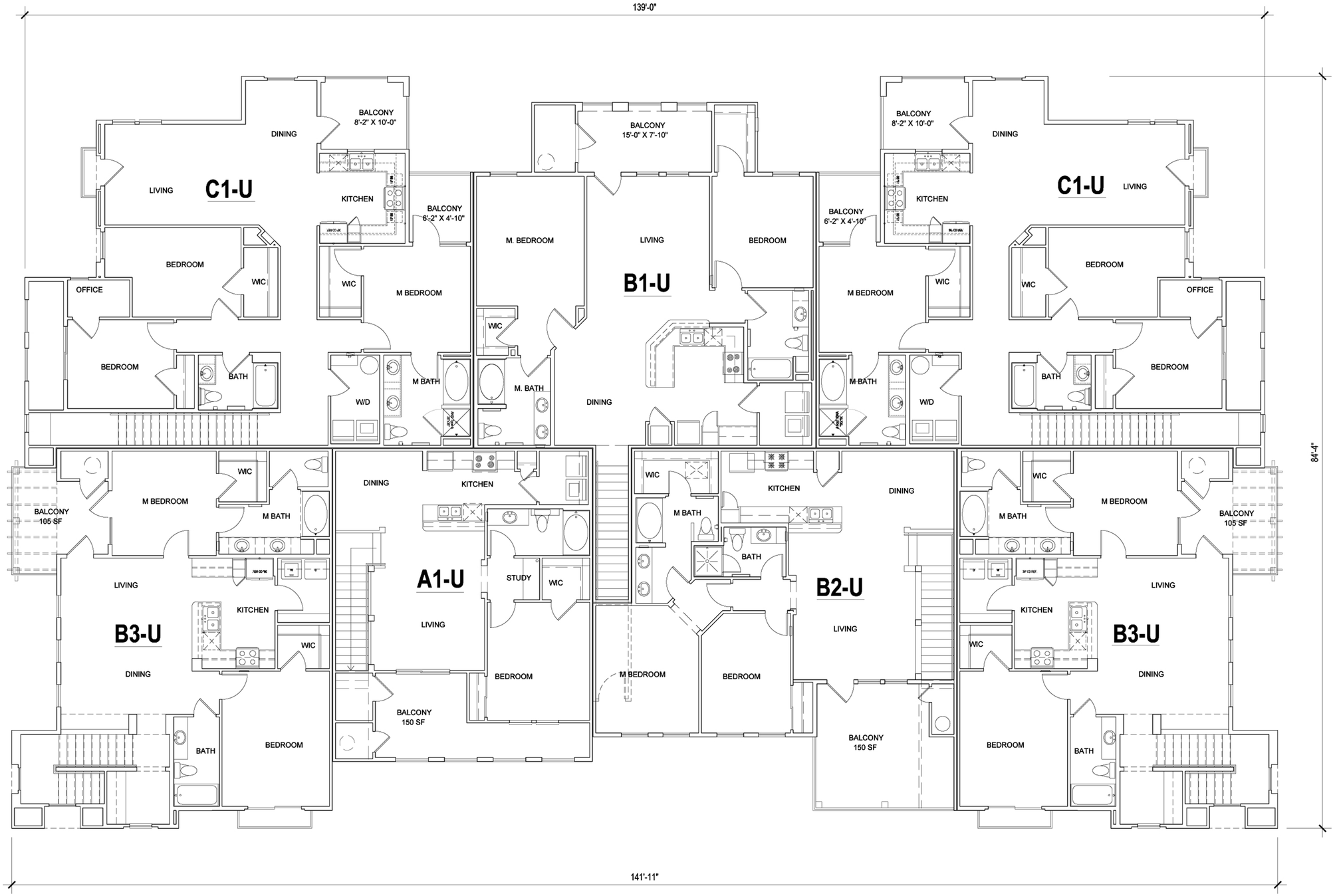
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BIG HOUSE, LEVEL 1, TUSCAN

Tuffli Company, Inc.
for North Bayport Industrial Park II, Ltd

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0' 4' 8' 16'

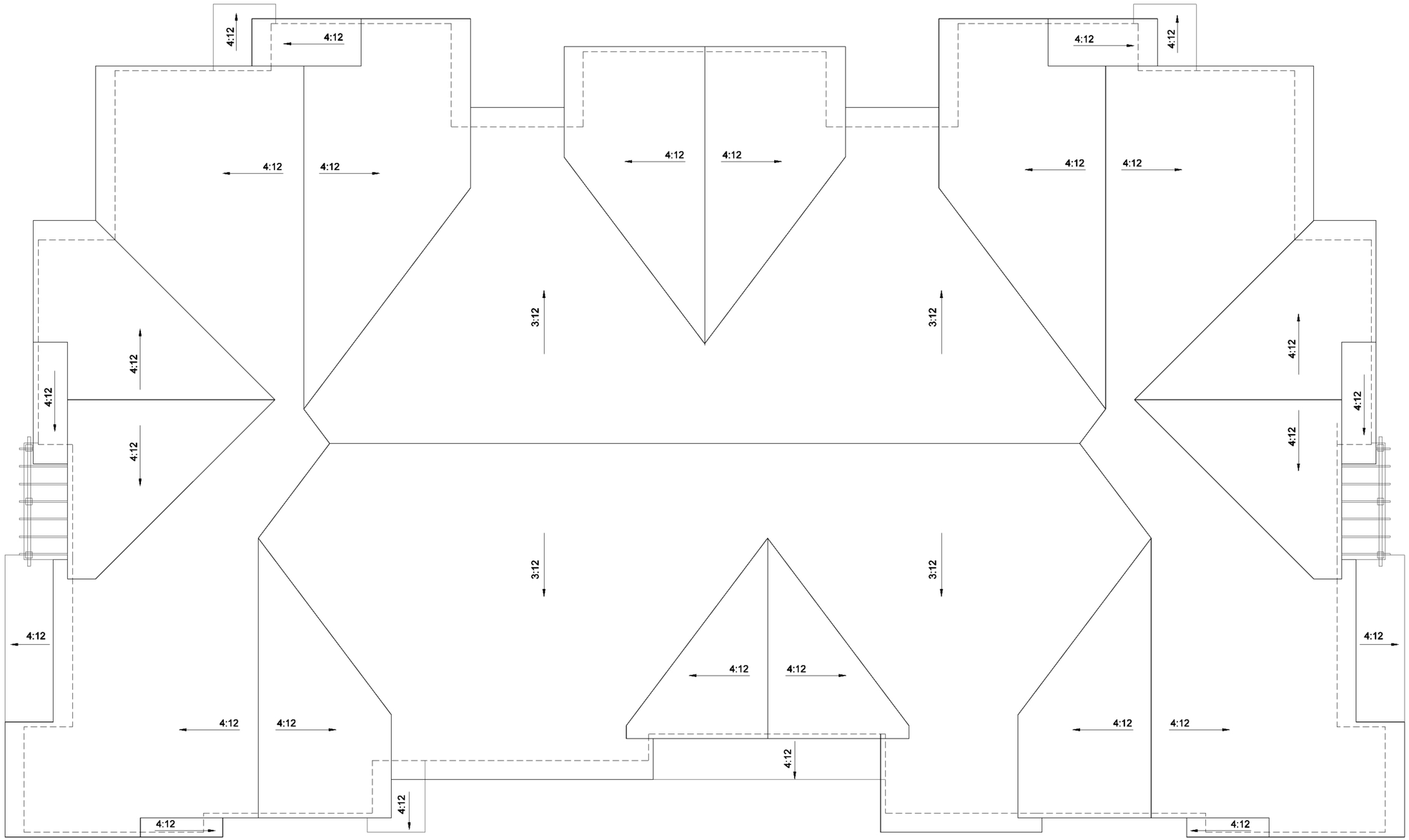
A-8

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BIG HOUSE, LEVEL 2, TUSCAN

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SCALE: 3/16"= 1'-0" (24x36)

0' 4' 8' 16'

A-9

MENIFEE APARTMENTS
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BIG HOUSE, ROOF, TUSCAN

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1 REAR ELEVATION, BUILDING TYPE II (TUSCAN STYLE)
SCALE: 1/8" = 1'-0"



2 RIGHT ELEVATION, BUILDING TYPE II (TUSCAN STYLE)
LEFT ELEVATION SIMILAR (MIRROR IMAGE)
SCALE: 1/8" = 1'-0"



3 FRONT ELEVATION, BUILDING TYPE II (TUSCAN STYLE)
SCALE: 1/8" = 1'-0"

FOR SPECIFIC INFORMATION ON BUILDING COLORS AND MATERIALS, REFER TO PHYSICAL "COLORS AND MATERIALS" BOARDS PROVIDED

SCALE: 1/8"= 1'-0" (24x36)

0' 4' 8' 16'

A-10

MENIFEE APARTMENTS
MENIFEE, CALIFORNIA HPA# 2014141.01

BIG HOUSE ELEVATIONS, TUSCAN #1

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1 REAR ELEVATION, BUILDING TYPE II (TUSCAN STYLE)
SCALE: 1/8" = 1'-0"



2 RIGHT ELEVATION, BUILDING TYPE II (TUSCAN STYLE)
LEFT ELEVATION SIMILAR (MIRROR IMAGE)
SCALE: 1/8" = 1'-0"



3 FRONT ELEVATION, BUILDING TYPE II (TUSCAN STYLE)
SCALE: 1/8" = 1'-0"

FOR SPECIFIC INFORMATION ON BUILDING COLORS AND MATERIALS, REFER TO PHYSICAL "COLORS AND MATERIALS" BOARDS PROVIDED

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A-10.1

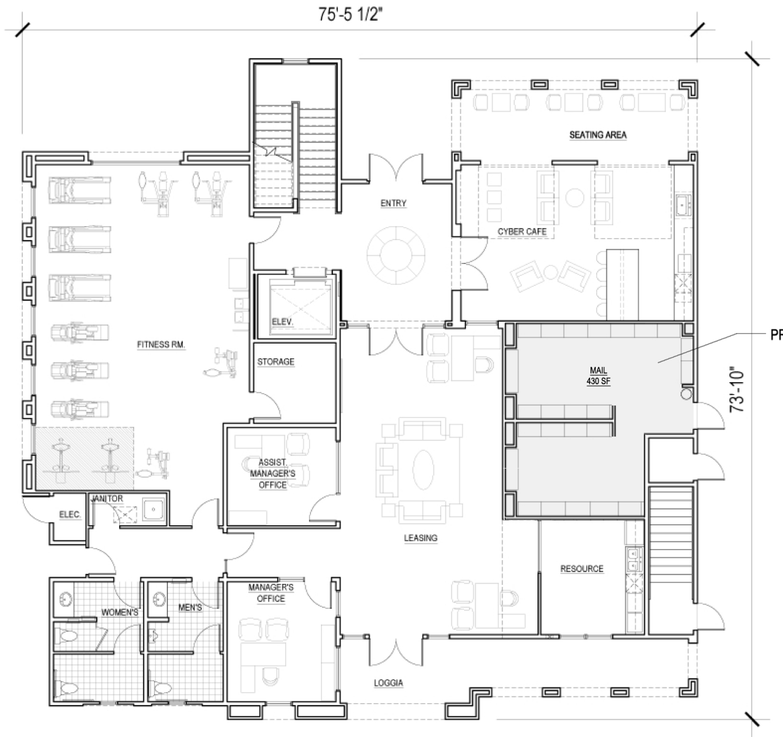
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BIG HOUSE ELEVATIONS, TUSCAN #2

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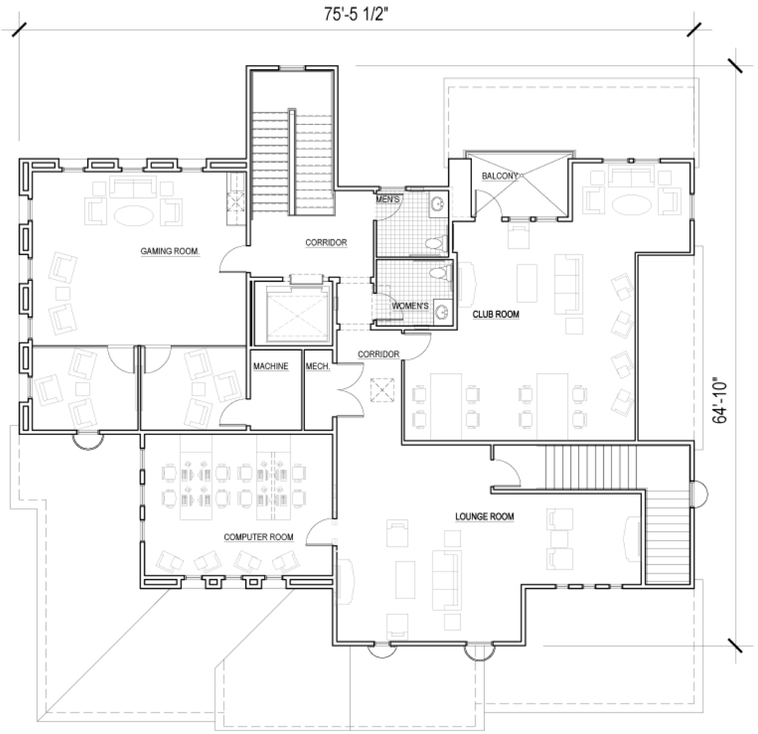
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PRELIMINARY LAYOUT OF MAIL AND PARCEL-LOCKER ROOM
(SIZED TO SERVE 240 UNITS AND LEASING OFFICE
PER LATEST CODE REQUIREMENTS)

LEVEL ONE



LEVEL TWO

SCALE: 1/8"= 1'-0" (24X36 SHEET)

0' 8' 16' 32'

N

A-11

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LEFT ELEVATION



RIGHT ELEVATION



REAR ELEVATION



FRONT ELEVATION

SCALE: 1/8"= 1'-0" (24X36 SHEET)

0' 8' 16' 32'

A-12

THE VILLAGE AT JUNIPERO
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CLUBHOUSE ELEVATIONS

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MENIFEE
New. Better. Best.

TRASH ENCLOSURES STANDARDS AND SPECIFICATIONS :

STORM RUNOFF RESULTING IN DIRECT CONTACT WITH TRASH ENCLOSURE, OR WASTEWATER RUNOFF FROM TRASH ENCLOSURE ARE PROHIBITED FROM RUNNING OFF A SITE ONTO THE CITY MS4 WITHOUT PROPER TREATMENT. TRASH ENCLOSURES IN NEW DEVELOPMENTS AND REDEVELOPMENT PROJECTS SHALL MEET NEW STORM WATER QUALITY STANDARDS INCLUDING:

a) PROVISION OF A SOLID IMPERMEABLE ROOF WITH A MINIMUM CLEARANCE HEIGHT TO ALLOW THE BIN LID TO COMPLETELY OPEN.

b) CONSTRUCTED OF REINFORCED MASONRY WITHOUT WOODEN GATES. WALLS SHALL BE AT LEAST 6 FEET HIGH.

c) PROVISION OF CONCRETE SLAB FLOOR, GRADED TO COLLECT ANY SPILL WITHIN THE ENCLOSURE.

d) ALL TRASH BINS IN THE TRASH ENCLOSURE SHALL BE LEAK PROOF WITH LIDS THAT ARE CONTINUOUSLY KEPT CLOSED.

e) THE ENCLOSURE AREA SHALL BE PROTECTED FROM RECEIVING DIRECT RAINFALL OR RUN-ON FROM COLLATERAL SURFACES.

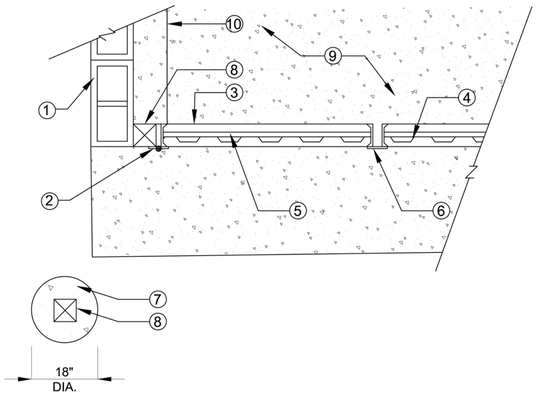
ANY STANDING LIQUIDS WITHIN THE TRASH ENCLOSURES WITHOUT FLOOR DRAIN MUST BE CLEANED UP AND DISPOSED OF PROPERLY USING A MOP AND A BUCKET OR A WET/DRY VACUUM MACHINE. ALL NON-HAZARDOUS LIQUIDS WITHOUT SOLID TRASH MAY BE PUT IN THE SANITARY SEWER AS AN OPTION, IN ACCORDANCE WITH EASTERN MUNICIPAL WATER DISTRICT (EMWD) CRITERIA.

AN ALTERNATE FLOOR DRAIN FROM THE INTERIOR OF THE ENCLOSURE THAT DISCHARGES TO THE SANITARY SEWER MAY BE CONSTRUCTED ONLY AFTER OBTAINING APPROVAL FROM EMWD. THIS OPTION REQUIRES THE FOLLOWING:

a) THE TRASH ENCLOSURE SHALL BE LOCKABLE AND LOCKED WHEN NOT IN USE WITH A 2-INCH OR LARGER BRASS RESETTABLE COMBINATION LOCK. ONLY EMPLOYEES AND STAFF AUTHORIZED BY THE ENCLOSURE PROPERTY OWNER SHALL BE GIVEN ACCESS. THIS REQUIREMENT MAY NOT BE APPLICABLE TO COMMERCIAL COMPLEXES WITH MULTIPLE TENANTS.

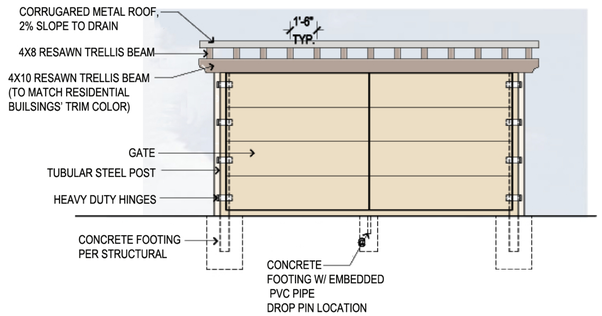
b) A WATERLESS TRAP PRIMER SHALL BE PROVIDED TO PREVENT ESCAPE OF GASSES FROM THE SEWER LINE AND SAVE WATER.

c) HOT AND COLD RUNNING WATER SHALL BE PROVIDED WITH A CONNECTION NEARBY WITH AN APPROVED BACKFLOW PREVENTER. THE SPIGOT SHALL BE PROTECTED AND LOCATED AT THE REAR OF THE ENCLOSURE TO PREVENT DAMAGE FROM BINS.



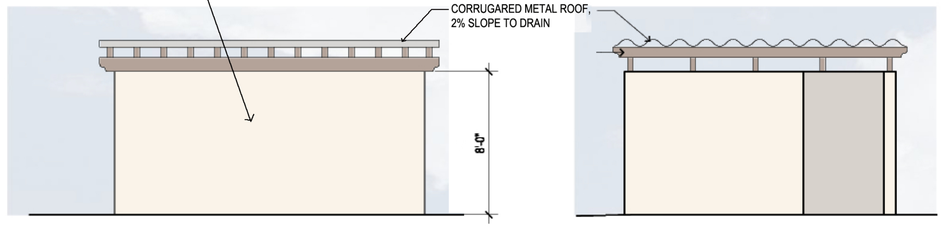
1. CMU WALL - SEE NOTE A
2. HEAVY DUTY GATE HINGE (3)
3. 3-INCH GALVANIZED STEEL ANGLE FRAME
4. MINI-V-BEAM 26 GAUGE WITH ENDURA CLAD FINISH AS MANUFACTURED BY ASC PACIFIC INC. OR APPROVED EQUAL. SPOT WELD TO ANGLE FRAME (CONTRACTOR TO SUBMIT SHOP DRAWINGS)
5. GALV. STEEL DIAGONAL CROSS BRACE
6. GALVANIZED STEEL STOP PLATE
7. CONCRETE FOOTING (18-INCH DIA. X 48-INCH DEPTH) / REFER TO STRUCTURAL ENGINEER'S SPECIFICATIONS FOR REINFORCEMENT
8. 4-INCH X 4-INCH TUBULAR STEEL GATE POST. SET POST FLUSH TO WALL, GROUT FILL POST SOLID. PAINT WITH (2) COATS ZINC PRIMER & (2) COATS SATIN FINISH PAINT - COLOR TO BE SELECTED
9. CONCRETE FLOOR
10. CONCRETE CURB

NOTES:
A. 8-INCH X 8-INCH X 16-INCH CMU / REFER TO STRUCTURAL ENGINEER'S SPECIFICATIONS FOR REINFORCEMENT.
B. CONCRETE FOOTING TO ACHIEVE 4300 PSI @ 28 DAYS.



FRONT ELEVATION

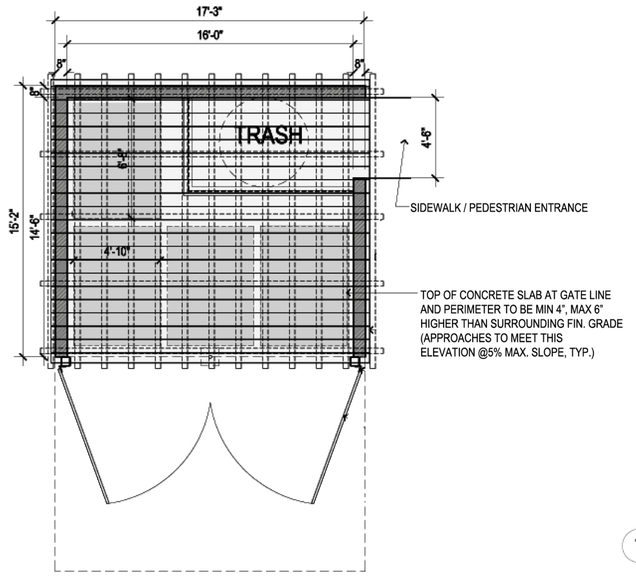
EXTERIOR FINISH COLOR AND MATERIAL TO MATCH NEAREST ADJACENT RESIDENTIAL BUILDING'S PREVAILING FACADE MATERIAL/COLOR



REAR ELEVATION

SIDE ELEVATION

2 ELEVATIONS (4 BINS)
SCALE: 1/4" = 1'-0"



NOTE:
TRASH ENCLOSURES FINISHES AND DETAILS TO BE FURTHER REFINED DURING DESIGN DEVELOPMENT. ALL TRASH ENCLOSURE CONSTRUCTION AND DRAINAGE DETAILS TO CONFORM WITH CITY OF MENIFEE TRASH ENCLOSURE GUIDELINES

1 PLAN, TRASH ENCLOSURES (4CY BINS)
SCALE: 1/4" = 1'-0"

A-13

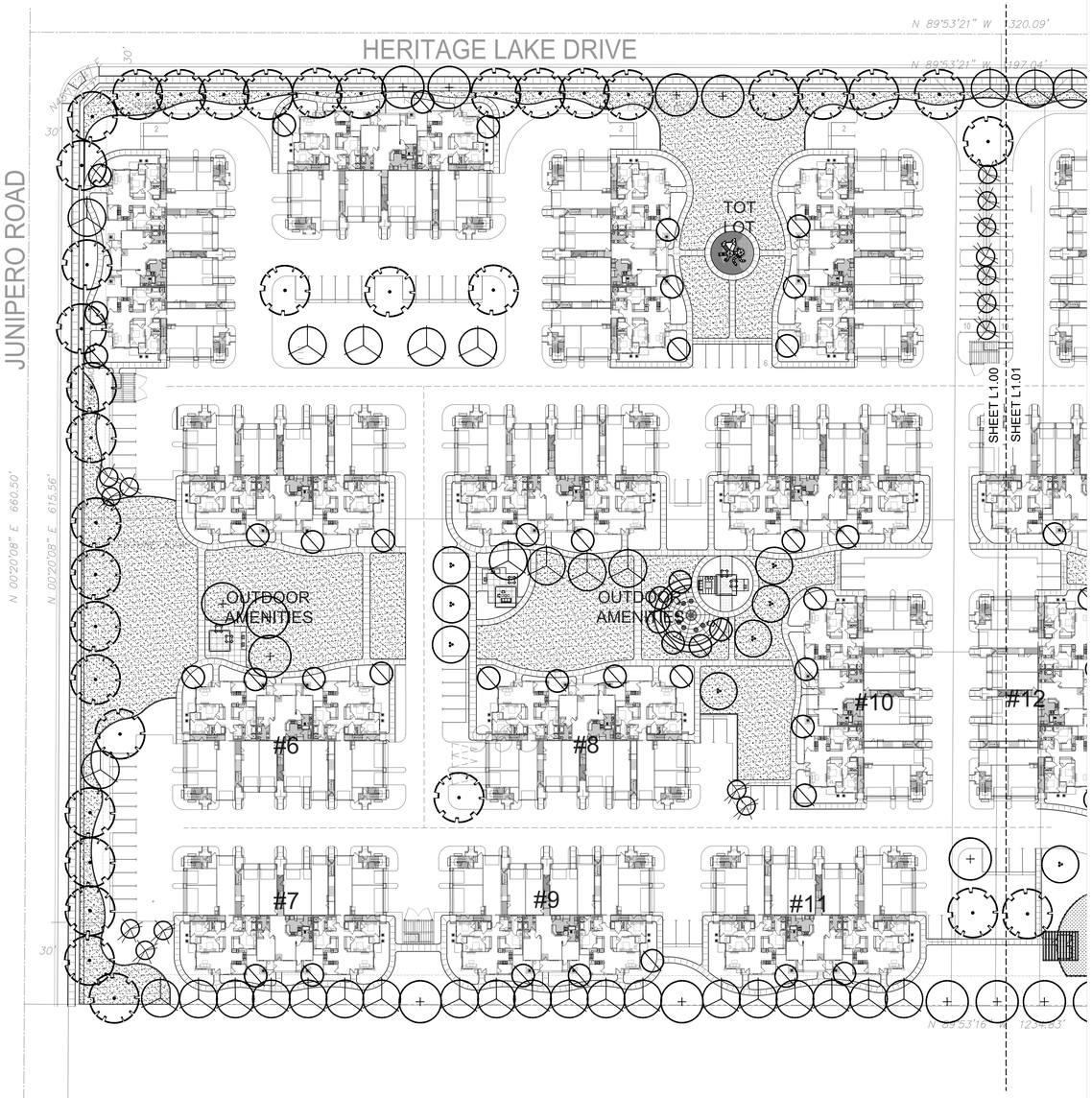
THE VILLAGE AT JUNIPERO
MENIFEE, CALIFORNIA HPA# 2014141

TYPICAL TRASH ENCLOSURES

CHRISTIANSEN & CO.

HUMPHREYS & **PARTNERS** ARCHITECTS, L.P.
5339 Alpha Rd., Suite 300, Dallas, TX 75240 | 972.701.9636 | www.humphreys.com

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PRELIMINARY LANDSCAPE PLAN

SITE

0" 20' 40' 80'

SCALE: 1" = 40'-0"
(30"X42" SHEET)

PLANT PALETTE - OVERALL

CANOPY TREES

NAME	QTY.	SIZE	CALIPER	COMMENTS
Washingtonia filifera (Native sp.) CALIFORNIA FAN PALM	14	36" BOX	2" CAL. MIN.	18' HT. STANDARD
Parkinsonia floridum BLUE PALO VERDE (DROUGHT TOLERANT)	12	36" BOX	2" CAL. MIN.	18' HT. STANDARD
Platanus racemosa (Native sp.) CALIFORNIA SYCAMORE	25	36" BOX	2" CAL. MIN.	18' HT. STANDARD
Quercus agrifolia (Native sp.) COAST LIVE OAK	52	36" BOX	2" CAL. MIN.	18' HT. MULTI-TRUNK

UNDERSTORY TREES

NAME	QTY.	SIZE	CALIPER	COMMENTS
Prosopis glandulosa var. Torreyana HONEY MESQUITE (NATIVE SP.)	67	24" BOX	2" CAL. MIN.	10' HT. STANDARD
Chilopsis linearis (Native sp.) DESERT WILLOW	37	24" BOX	1" CAL. MIN.	10' HT. STANDARD
Heteromeles arbutifolia (Native sp.) TOYON TREE	78	24" BOX	1" CAL. MIN.	10' HT. STANDARD
Olea europaea 'Swan Hill' SWAN HILL OLIVE	20	24" BOX	2" CAL. MIN.	10' HT. STANDARD

SHRUBS

NAME	QTY.	SIZE	HEIGHT	COMMENTS
Rhus Ovata (Natve sp.) SUGARBUSH	00	5 GAL	30" HT.	HEAVY SPECIMENS
Ceanothus 'Blue Jeans' (Native sp.) BLUE JEANS CALIFORNIA LILAC	00	5 GAL	30" HT.	HEAVY SPECIMENS
Dodonea Viscosa (Drought tolerant) HOP BUSH	00	5 GAL	30" HT.	HEAVY SPECIMENS
Rhamnus Californica (Native sp.) LEATHERLEAF COFFEEBERRY	00	5 GAL	30" HT.	HEAVY SPECIMENS
Artemesia Californica (Native sp.) CALIFORNIA SAGEBRUSH	00	5 GAL	30" HT.	HEAVY SPECIMENS
Ribes Sanguineum (Native sp.) RED FLOWERING CURRANT	00	5 GAL	30" HT.	HEAVY SPECIMENS
Myrica Californica (Native sp.) PACIFIC WAX MYRTLE	00	5 GAL	30" HT.	HEAVY SPECIMENS
Salvia Leucantha (Drought tolerant) PURPLE SAGE	00	5 GAL	30" HT.	HEAVY SPECIMENS
Carpenteria Californica (Native sp.) BUSH ANEMONE	00	5 GAL	30" HT.	HEAVY SPECIMENS
Heteromeles Arbutifolia (Native sp.) TOYON	00	5 GAL	30" HT.	HEAVY SPECIMENS
Lonicera Sempervirens TRUMPET HONEYSUCKLE (DROUGHT TOLERANT)	00	5 GAL	30" HT.	HEAVY SPECIMENS

ACCENTS

NAME	QTY.	SIZE	SPACING	COMMENTS
Lantana Camara (Drought tolerant) BUSH LANTANA	00	5 GAL	30" O.C.	
Festuca Idahoensis IDAHO FESCUE (DROUGHT TOLERANT)	00	5 GAL	30" O.C.	
Muhlenbergia Rigens (Native sp.) DEER GRASS	00	5 GAL	30" O.C.	
Leymus Condensatus 'Canyon Prince' CANYON PRINCE WILD RYE (NATIVE SP.)	00	5 GAL	30" O.C.	
Helictotrichon Sempervirens BLUE OAT GRASS (DROUGHT TOLERANT)	00	5 GAL	30" O.C.	
Asclepis Subulata DESERT MILKWEED (DROUGHT TOLERANT)	00	5 GAL	30" O.C.	
Iris Douglasiana (Native sp.) DOUGLAS IRIS	00	5 GAL	30" O.C.	

GROUNDCOVERS

NAME	QTY.	SIZE	SPACING	COMMENTS
Erigonum Fasciculatum Poliofolium INTERIOR CA. BUCKWHEAT (NATIVE SP.)	00	1 GAL	18" O.C.	
Oenothera Stubbei BAJA EVENING PRIMROSE	00	1 GAL	18" O.C.	
Baccharis Pilularis 'Pigeon Point' DWARF COYOTE BUSH (NATIVE SP.)	00	1 GAL	18" O.C.	
Arctostaphylus Hookeri 'Franciscana' FRANSISCAN MANZANITA (NATIVE SP.)	00	1 GAL	18" O.C.	

SURFACE MATERIALS

DESCRIPTION	QUANTITY
NATIVE SEED MIX: 50% BUFFALO GRASS (UC VERDE) 50% BLUE GRAMA	XXXX SQ.FT. AT 3LBS. PER 1,000 SQ.FT. FOR BUFFALO GRASS & 1LB. PER 1,000 SQ.FT. FOR BLUE GRAMA
SHREDDED HARDWOOD MULCH 4" DEPTH MIN. IN ALL BEDS	

NOTE: TEMPORARY IRRIGATION IS NEEDED FOR A MINIMUM OF 60 DAYS FOR SEED TO TAKE ROOT AND ESTABLISH. 60 DEGREE SOIL TEMPERATURE REQUIRED FOR INSTALLATION. PLANT IN SPRING FOR BEST RESULTS.

NOTE:

GROUND IMMEDIATELY ADJACENT TO THE PROPOSED BUILDING FOUNDATION AREAS TO BE GRADED AWAY AT A SLOPE NOT LESS THAN 1:20 (5%) FOR A MINIMUM DISTANCE OF 10-FEET AS PER THE REQUIREMENTS OF SECTION 1804.3 INTERNATIONAL BUILDING CODE (IBC) 2012.

GENERAL LANDSCAPE NOTES

1. PROVIDE 3" LAYER (MIN.) OF MULCH IN SHRUB BEDS AND UNPLANTED AREAS; 2" LAYER (MIN.) OF MULCH IN GROUNDCOVER AREAS; & 3" LAYER (MIN.) OF MULCH FOR SLOPES.
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12. THE FOLLOWING ITEMS WILL BE INCORPORATED INTO THE FINAL IRRIGATION DESIGN PLANS AND SPECIFICATIONS:
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    -RAIN SENSING DEVICE
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    -SUBSURFACE OR LOW-VOLUME IRRIGATION WILL BE USED FOR IRREGULARLY SHAPED AREAS, OR AREAS LESS THAN 8' IN WIDTH

DESIGNED BY: M.R. & N.R.
DRAWN BY: N.R.
LAOR: DANIEL R. ERLANDSON
PLOT DATE: 02/09/2022

ISSUE FOR PRICING/BIDDING:
ISSUE DATE

ISSUE FOR PERMIT APPLICATION:
ISSUE DATE

ISSUE FOR CONSTRUCTION:
ISSUE DATE

REVISION SCHEDULE

NO:	DATE:	DESCRIPTION:

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THE VILLAGE AT JUNIPERO

MENIFEE, CALIFORNIA

PROJECT #:14141

CONCEPTUAL SITE PLAN - 2022-FEBRUARY-09 - NOT FOR CONSTRUCTION

These drawings are for preliminary coordination only and not to be used for regulatory approval or construction.

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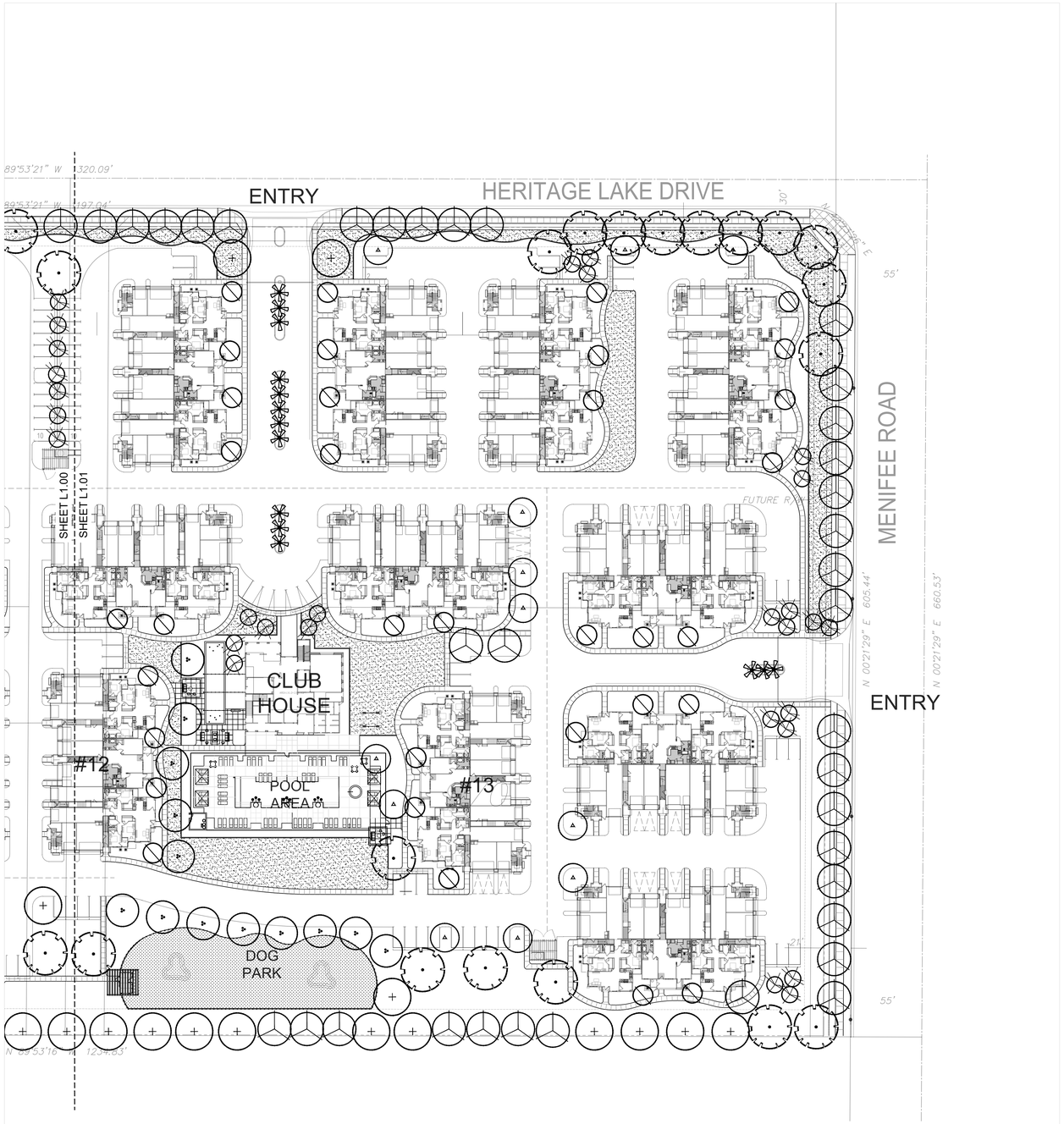
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DALLAS, TX 75240
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F: (972) 701-9639
W: www.hplastudio.com

CHRISTIANSEN & COMPANY

SHEET TITLE
LANDSCAPE PLAN

SHEET NUMBER
L1.00

SCALE: AS INDICATED



PRELIMINARY LANDSCAPE PLAN

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0" 20' 40' 80'

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THE VILLAGE AT JUNIPERO

MENIFEE, CALIFORNIA

PROJECT #:14141

These drawings are for preliminary coordination only and not to be used for regulatory approval or construction.

hpla studio

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5339 ALPHA ROAD SUITE 300
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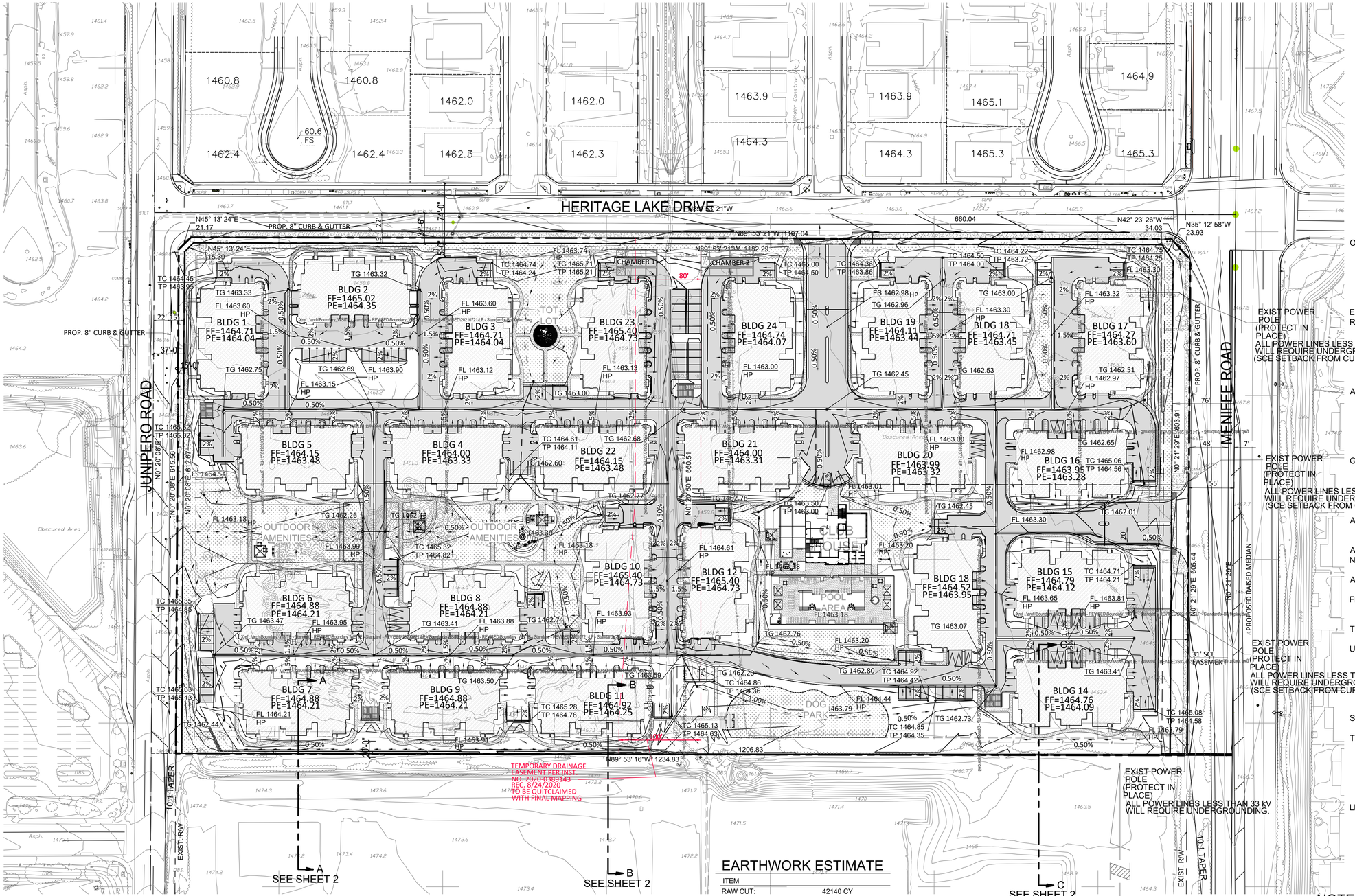
CHRISTIANSEN & COMPANY

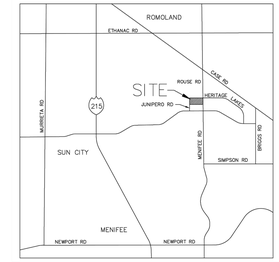
SHEET TITLE
LANDSCAPE PLAN

SHEET NUMBER
L1.01

SCALE: AS INDICATED

CONCEPTUAL SITE PLAN - 2022-FEBRUARY-09 - NOT FOR CONSTRUCTION





VICINITY MAP NTS

OWNER/APPLICANT: NORTH BAYPORT INDUSTRIAL PARK II, LTD.
2245 W. 190TH STREET
TORRANCE, CALIFORNIA 90504
PH: (310) 326-2530 FAX: (310) 326-5113
CONTACT: DON CARRUTH
e-mail:DRC@TUFFLI.COM

ENGINEER/ REPRESENTATIVE: CHRISTIANSEN & COMPANY
5225 CANYON CREST DRIVE, STE. 251
RIVERSIDE, CALIFORNIA 92507
PH: (951) 323-4713 FAX: (951) 405-8410
CONTACT: KEITH CHRISTIANSEN, P.E.
e-mail: KEITH@CCOCIVIL.COM

ARCHITECT: HUMPHREYS & PARTNERS, ARCHITECTS, L.P.
2350 SE BRISTOL STREET, SUITE 310
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PH: (949) 955-9400 FAX: (949) 955-1897
CONTACT: SOONG KIM
e-mail: SOONG@HUMPHREYS.COM

GEOTECHNICAL: NorCal ENGINEERING
10641 HUMBOLT STREET
LOS ALAMITOS, CALIFORNIA 90720
PH:(562) 799-9469
CONTACT: STEVE SPENSIERO

ADDRESS: XXXX JUNIPERO ROAD
MENIFEE, CALIFORNIA 92224

ASSESSOR PARCEL NUMBERS: 333-070-018, 333-070-019 & 333-070-053

ACREAGE: 19.25 ACRES (gross) 17.27 ACRES (net)

FEMA MAP: PANEL: 06025C2060G
ZONE: X

THOMAS BROS.: PG 838, GRID F4, G4 - 2014 ED.

UTILITY PURVEYORS: WATER - EMWD
SEWER - EMWD
ELECTRIC- EDISON
GAS- SOUTHERN CAL GAS
PHONE- VERIZON
CABLE- TIME WARNER

SCHOOL DISTRICT: MENIFEE UNION SCHOOL DISTRICT

TOPOGRAPHY: VAN SURVEYING
3649 NINTH STREET
RIVERSIDE, CALIFORNIA 92501
CONTACT: STEVE VAN
e-mail: VANSURVEYING@AOL.COM
DATE SURVEYED: 5/1/2014

LEGAL DESCRIPTION: LOTS 964, 965, 970 & 971 OF ROMOLA FARMS NO. 10 AS SHOWN BY MAP ON FILE IN BOOK 15 AT PAGES 29 THROUGH 31OF MAPS IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY,TOGETHER WITH THAT PORTION OF THE EASTERLY20 FEET OF LOT "H" (JUNIPERO ROAD) AS SHOWN ON SAID MAP VACATED BY THE BOARD OF SUPERVISORS OF THE COUNTY OF RIVERSIDE, RECORDED FEBRUARY 6, 1962 AS INSTRUMENT NO. 11656 OF OFFICIAL RECORDS.

LAND USE

EXISTING: VACANT
PROPOSED: RESIDENTIAL-APARTMENT

ZONING

EXISTING: MDR
PROPOSED: MDR

GENERAL PLAN DESIGNATION = 8.1-14 DU/AC RESIDENTIAL

EARTHWORK ESTIMATE

ITEM		
RAW CUT:	42140 CY	
RAW FILL:		31925 CY
SHRINKAGE (10%):	(4210)CY	
SUBSIDENCE (0.1'):	(2766) CY	
OVEREXCAVATION (3.0')	(3293) CY	
TOTAL	31925 CY	31925 CY

MAXIMUM CUT DEPTH=4.61' MAX. CUT SLOPE=2:1
MAXIMUM FILL DEPTH=4.30' MAX. FILL SLOPE=2:1

NOTES:

1) STREET VACATIONS FOR THE NORTH SOUTH ROAD THROUGH THE CENTER OF PROJECT SHALL BE PART OF FINAL MAPPING OF TENTATIVE TRACT NO. 38340.
2) PROPERTY IS NOT SUBJECT TO LIQUEFACTION OR OTHER GEOLOGIC HAZARDS.
3) PROPERTY IS NOT SUBJECT TO OVERFLOW, INUNDATION OR FLOOD HAZARD.
4) ALL PARKING SPACE CURB IS PER CITY OF MENIFEE STD. DWG. 202-TYPE 6A CURB.
5) MENIFEE RD. ENTRY IS "RIGHT IN-RIGHT OUT".

0 30 60 120 180 240
SCALE: 1"= 60'

DATE PREPARED:2/17/23

NOTE: ALL PLANS ARE PRELIMINARY UNLESS SIGNED BY CITY OF ENGINEER OF RECORD OR LAND SURVEYOR

BASIS OF BEARING:

THE CALIFORNIA STATE PLANE COORDINATE SYSTEM 1983 ZONE 6, 2007.00 EPOCH, BASED LOCALLY ON CONTROL STATIONS "BILL" AND "P477" , NAD83 (NSRS2011) BEING NORTH 28°53'23.27" EAST.

REVISIONS

SHT.	DESCRIPTION	DATE	BY	APRD

ENGINEER LOGO

Christiansen & Company
Land Development · Design · Engineering
Est. 2007
5225 Canyon Crest Drive, Ste 251
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ENGINEER SEAL

REGISTERED PROFESSIONAL ENGINEER
KEITH A CHRISTIANSEN
No. 50083
Civil
Exp. 06/30/2023
STATE OF CALIFORNIA

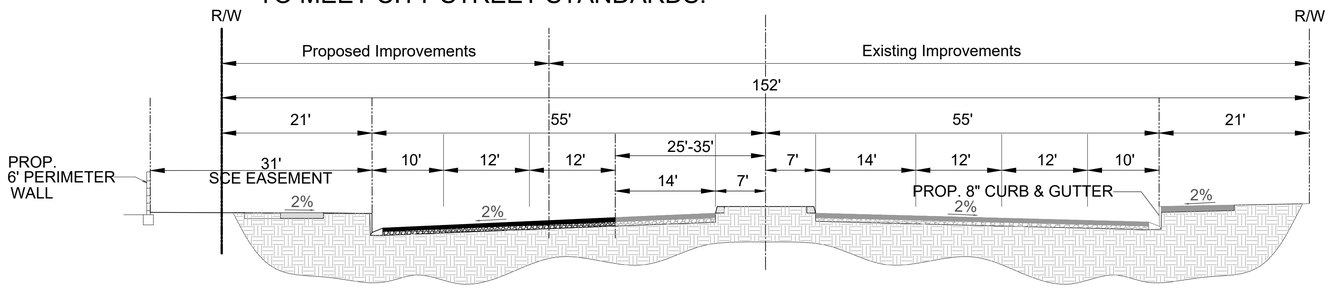
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DESIGN:	KAC
DRAWN:	CG
CHECKED:	KAC
APPROVED:	KAC
DATE:	DEC. 12, 2021

CITY OF MENIFEE
ENGINEERING DEPARTMENT

VILLAGE AT JUNIPERO
Tentative Tract Map No. 38340
Preliminary Grading Plan

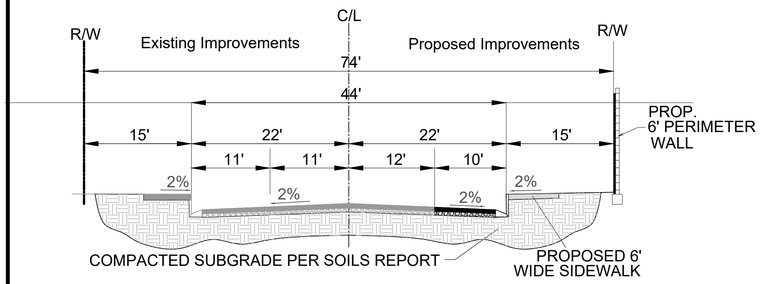
SHEET NO.
PRECGP-1
1 OF 4
PROJECT NO: TTM

NOTE: THE OBLIGATION TO BRING FRONTAGE TO MEET CITY STANDARDS IS CONDITIONED FOR THE TIME OF CONSTRUCTION.AT A MINIMUM THE PROJECT MUST PROVIDE PAVEMENT CONSTRUCTION TO CENTERLINE PLUS 12'. EXISTING CONDITIONS AT TIME OF CONSTRUCTION SHALL DICTATE CONSTRUCTION LIMITS TO MEET CITY STREET STANDARDS.



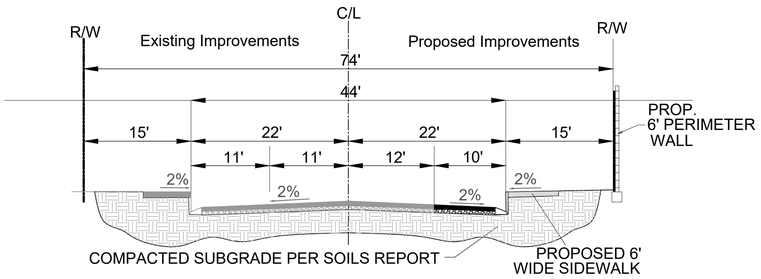
MENIFEE ROAD STREET SECTION

URBAN ARTERIAL HIGHWAY, CITY OF MENIFEE STD. NO 96
(MODIFIED PER CONDITIONS OF APPROVAL)
MIN. TI=11, MIN. SECTION = 6" AC OVER 10" AB
R-VALUE= 50.0
SCALE: 1"= 10'



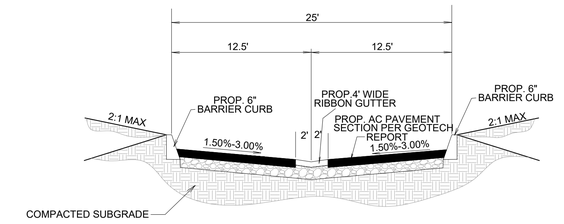
HERITAGE LAKE DRIVE

EAST OF JUNIPERO ROAD TO MENIFEE ROAD
COLLECTOR STREET, CITY OF MENIFEE NO. 113
(MODIFIED PER CONDITIONS OF APPROVAL)
MIN. TI=8, MIN. SECTION = 5" AC OVER 6" AB
R-VALUE=50.0
SCALE: 1"= 10'



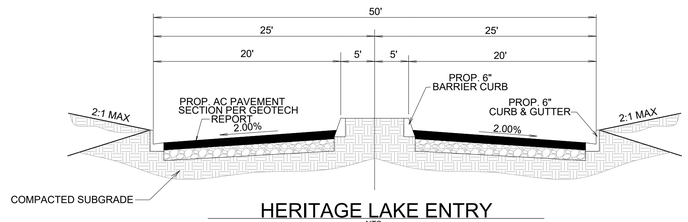
JUNIPERO ROAD

COLLECTOR, CITY OF MENIFEE STD. NO. 113
MIN. TI=8, MIN. SECTION = 5" AC OVER 6" AB
R-VALUE= 50.0
SCALE: 1"= 10'



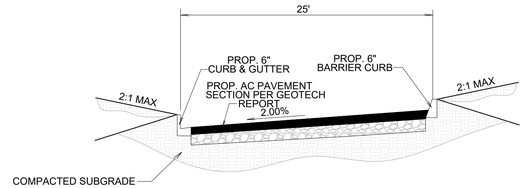
TYPICAL 25' WIDE DRIVE AISLE

NTS
R-VALUE= 28.0



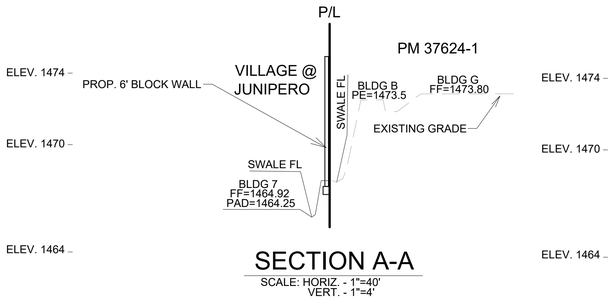
HERITAGE LAKE ENTRY

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R-VALUE= 28.0



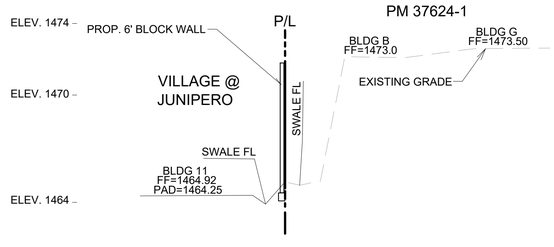
MENIFEE ROAD ENTRY

NTS
R-VALUE= 28.0



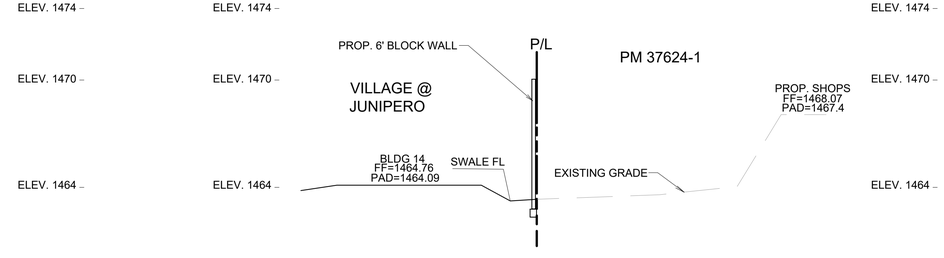
SECTION A-A

SCALE: HORIZ. - 1"=40'
VERT. - 1"=4'



SECTION B-B

SCALE: HORIZ. - 1"=40'
VERT. - 1"=4'



SECTION C-C

SCALE: HORIZ. - 1"=40'
VERT. - 1"=4'

DATE PREPARED:2/17/23

NOTE: ALL PLANS ARE PRELIMINARY UNLESS SIGNED BY ENGINEER OF RECORD OR LAND SURVEYOR

BASIS OF BEARING:

THE CALIFORNIA STATE PLANE COORDINATE SYSTEM 1983 ZONE 6, 2007.00 EPOCH, BASED LOCALLY ON CONTROL STATIONS "BILL" AND "P477" , NAD83 (NSRS2011) BEING NORTH 28°53'23.27" EAST.

REVISIONS

SHT.	DESCRIPTION	DATE	BY	APRD

ENGINEER LOGO

5225 Canyon Crest Drive, Ste 251
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email-keith@ccocivil.com
Christiansen & Company
Land Development · Design · Engineering
Est. 2007

ENGINEER SEAL

REGISTERED PROFESSIONAL ENGINEER
KEITH A. CHRISTIANSEN
No. 50083
Civil
Exp. 06/30/2023
STATE OF CALIFORNIA

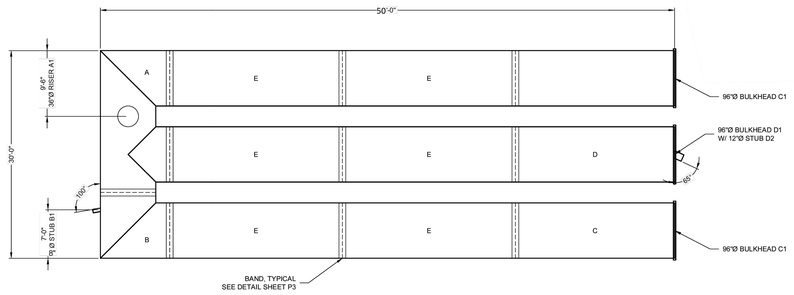
SCALE:	1" = 60'
DESIGN:	KAC
DRAWN:	CG
CHECKED:	KAC
APPROVED:	KAC
DATE:	DEC. 12, 2021

CITY OF MENIFEE
ENGINEERING DEPARTMENT

VILLAGE AT JUNIPERO
TENTATIVE TRACT MAP NO. 38340
PRELIMINARY GRADING PLAN

SHEET NO.
PRECP-2
2 OF 4

PROJECT NO: GPXX-XXX

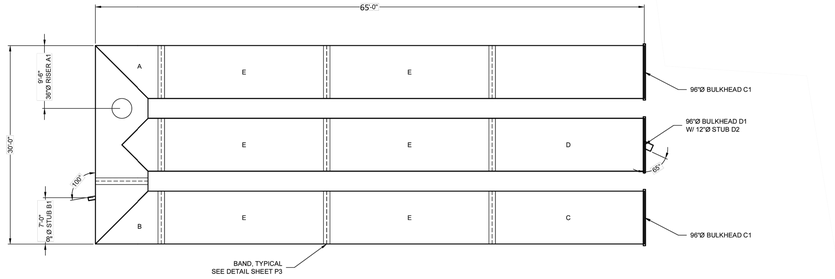


ASSEMBLY
TOTAL STORAGE PROVIDED = 12000 CF

CONTECH 96" CHAMBER 1 (WEST)
N.T.S.

NOTES

- THE PIPE SHOULD BE FULLY PERFORATED IN ACCORDANCE WITH AASHTO M 36, SECTION 8.3.2.2, AND USING CLASS 2 PERFORATIONS. THE TOTAL OPEN AREA OF THE PERFORATIONS WILL BE A MINIMUM OF 2.3% OF THE PIPE SURFACE AREA.
- BULKHEADS SHALL BE 12-GAGE OR HEAVIER STEEL AND THE COATING WILL MATCH THE SPECIFIED CMP COATING. BULKHEAD PLATES SHALL BE FULLY WELDED ONTO THE CMP WITH STEEL REINFORCEMENT AS REQUIRED. THE STEEL REINFORCEMENT SHALL BE POST COATED WITH ZINC RICH PAINT PER AASHTO M 36. BULKHEAD DESIGNS SHALL SATISFY THE REQUIREMENTS SHOWN IN CHAPTER 8 OF THE NCSPA CSP DESIGN MANUAL, AND CALCULATIONS SHALL BE PROVIDED TO THE ENGINEER OF RECORD (EOR) FOR APPROVAL UPON REQUEST.
- ALL FITTINGS SHALL BE STRUCTURALLY CHECKED FOR REINFORCEMENTS PER ASTM A998 AND PROVIDED TO THE EOR FOR APPROVAL UPON REQUEST.
- CONNECTING BANDS FOR INFILTRATION SYSTEMS SHALL BE ANY TYPE, BUT MUST BE AT LEAST 12" WIDE. BANDS SHALL MATCH THE SPECIFIED CMP COATING AND MEET THE REQUIREMENTS OF AASHTO M 36.
- ALL METALLIC COATINGS AFFECTED BY MANUFACTURING FABRICATION SHALL BE REPAIRED PE AASHTO M 36 SECTION 11 REQUIREMENTS (E.G. ZINC-RICH PAINT ON ALL WELDS). IF POLYMER COATINGS ARE USED THE REPAIR OF DAMAGED COATINGS WILL BE IN CONFORMANCE WITH AASHTO M 245 SECTION 11 REQUIREMENTS.
- ACCESS LADDERS SHALL BE ATTACHED BY THE MANUFACTURER PRIOR TO DELIVERY, NOT INSTALLED ON THE JOBSITE.

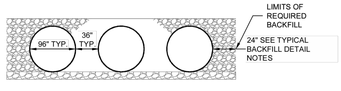


ASSEMBLY
TOTAL STORAGE PROVIDED = 15000 CF

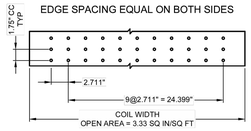
CONTECH 96" CHAMBER 2 (EAST)
N.T.S.

NOTES

- THE PIPE SHOULD BE FULLY PERFORATED IN ACCORDANCE WITH AASHTO M 36, SECTION 8.3.2.2, AND USING CLASS 2 PERFORATIONS. THE TOTAL OPEN AREA OF THE PERFORATIONS WILL BE A MINIMUM OF 2.3% OF THE PIPE SURFACE AREA.
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- ACCESS LADDERS SHALL BE ATTACHED BY THE MANUFACTURER PRIOR TO DELIVERY, NOT INSTALLED ON THE JOBSITE.



TYPICAL SECTION VIEW
NOT TO SCALE



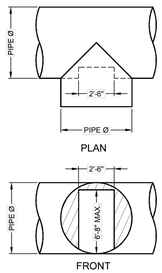
NOTES:
1. PERFORATIONS MEET AASHTO AND ASTM SPECIFICATIONS.
2. PERFORATION OPEN AREA PER SQUARE FOOT OF PIPE IS BASED ON THE NOMINAL DIAMETER AND LENGTH OF PIPE.
3. DIMENSIONS SUBJECT TO MANUFACTURER'S TOLERANCES.
4. ALL HOLES 3/8"Ø.

EXFILTRATION AREA
STANDARD PERFORATION PATTERNS

APPROXIMATE AREA PER LINEAR FOOT OF PIPE				
PIPE	CORRUGATION PATTERN			
	2 2/3" x 1/2"	3" x 1"	5" x 1"	ULTRA FLO
96"Ø	97.7 SQ. IN.	103.2 SQ. IN.	100.4 SQ. IN.	

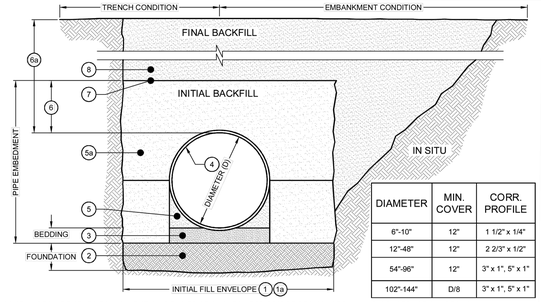
NOTES:
- GAGE AND COATING LIMITATIONS APPLY. 5" x 1" IS NOT AVAILABLE IN ALUMINUM.
- DIMENSIONS SUBJECT TO MANUFACTURER'S TOLERANCES.

TYPICAL PERFORATION DETAIL
NOT TO SCALE



96"Ø to 144"Ø FITTING REINFORCEMENT MAY BE REQUIRED BASED ON HEIGHT OF COVER AND LIVE LOAD CONDITION

TYPICAL MANWAY DETAIL
NOT TO SCALE



DIAMETER	MIN. COVER	CORR. PROFILE
6"-10"	12"	1 1/2" x 1/4"
12"-48"	12"	2 2/3" x 1/2"
54"-96"	12"	3" x 1", 5" x 1"
102"-144"	D/8	3" x 1", 5" x 1"

BACKFILL REQUIREMENTS FOLLOW THE GUIDELINES OF AASHTO LRFD BRIDGE DESIGN (SEC 12) AND CONSTRUCTION (SEC 26)

1 MINIMUM TRENCH WIDTH MUST ALLOW ROOM FOR PROPER COMPACTION OF HAUNCH MATERIALS UNDER THE PIPE. THE MINIMUM TRENCH WIDTH (12.6.6.1):
PIPE ≤ 12": D + 16"
PIPE > 12": 1.5D + 12"

1a MINIMUM EMBANKMENT WIDTH (IN FEET) FOR INITIAL FILL ENVELOPE (12.6.6.2):
PIPE < 24": 3.0D
PIPE 24" - 144": D + 4'0"
PIPE > 144": D + 10'0"

2 THE FOUNDATION UNDER THE PIPE AND SIDE BACKFILL SHALL BE ADEQUATE TO SUPPORT THE LOADS ACTING UPON IT (26.5.2).

3 BEDDING MATERIAL SHALL BE A RELATIVELY LOOSE GRANULAR MATERIAL THAT IS ROUGHLY SHAPED TO FIT THE BOTTOM OF THE PIPE, AND A MINIMUM OF TWICE THE CORRUGATION DEPTH IN THICKNESS, WITH THE MAXIMUM PARTICLE SIZE OF ONE-HALF OF THE CORRUGATION DEPTH (26.3.8.1, 26.5.3).

4 PERFORATED CORRUGATED STEEL PIPE (CSP / HEL-COR).

5 HAUNCH ZONE MATERIAL SHALL BE HAND SHOVELED OR SHOVEL SLICED INTO PLACE TO ALLOW FOR PROPER COMPACTION (26.5.4).

5a BACKFILL MATERIAL SHALL BE A CLEAN, CRUSHED STONE MEETING SIZE NO. 3 OR 4, PER AASHTO M 43. IT IS RECOMMENDED THAT LIFTS NOT EXCEED AN 8" UNCOMPACTED LIFT HEIGHT TO PREVENT UNEVEN LOADING, AND THE LESSER OF 1/3 THE DIAMETER OR 24" AS THE MAXIMUM DIFFERENTIAL SIDE-TO-SIDE. COMPACTION OF ALL PLACED FILL MATERIAL IS NECESSARY AND SHALL BE CONSIDERED ADEQUATE WHEN NO FURTHER YIELDING OF THE MATERIAL IS OBSERVED UNDER THE COMPACTOR, OR UNDER FOOT, AND THE PROJECT ENGINEER, OR THEIR REPRESENTATIVE, IS SATISFIED WITH THE LEVEL OF COMPACTION (26.5.4).

6 INITIAL BACKFILL ABOVE PIPE MAY INCLUDE ROAD BASE MATERIAL (AND RIGID PAVEMENT IF APPLICABLE). SEE TABLE ABOVE.

6a TOTAL HEIGHT OF COMPACTED COVER FOR CONVENTIONAL HIGHWAY LOADS IS MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TOP OF RIGID PAVEMENT (12.6.6.3).

7 GEOTEXTILE SHALL BE USED TO WRAP TRENCH SIDES AND TOP ONLY TO PREVENT SOIL MIGRATION INTO VARYING SOIL TYPES (PROJECT ENGINEER).

8 FINAL BACKFILL MATERIAL SELECTION AND COMPACTION REQUIREMENTS SHALL FOLLOW THE PROJECT PLANS AND SPECIFICATIONS PER THE ENGINEER OF RECORD (26.5.4.1).

NOTES:
- FOR MULTIPLE BARREL INSTALLATIONS THE RECOMMENDED STANDARD SPACING BETWEEN PARALLEL PIPE RUNS SHALL BE PIPE DIA./2 BUT NO LESS THAN 12", OR 36" FOR PIPE DIAMETERS 72" AND LARGER. CONTACT YOUR CONTECH REPRESENTATIVE FOR NONSTANDARD SPACING (TABLE C12.6.7-1).

TYPICAL BACKFILL DETAIL
NOT TO SCALE

DATE PREPARED:2/17/23 NOTE: ALL PLANS ARE PRELIMINARY UNLESS SIGNED BY ENGINEER OF RECORD OR LAND SURVEYOR

BASIS OF BEARING:

THE CALIFORNIA STATE PLANE COORDINATE SYSTEM 1983 ZONE 6, 2007.00 EPOCH, BASED LOCALLY ON CONTROL STATIONS "BILL" AND "P477" , NAD83 (NSRS2011) BEING NORTH 28°53'23.27" EAST.

REVISIONS

SHT.	DESCRIPTION	DATE	BY	APRD

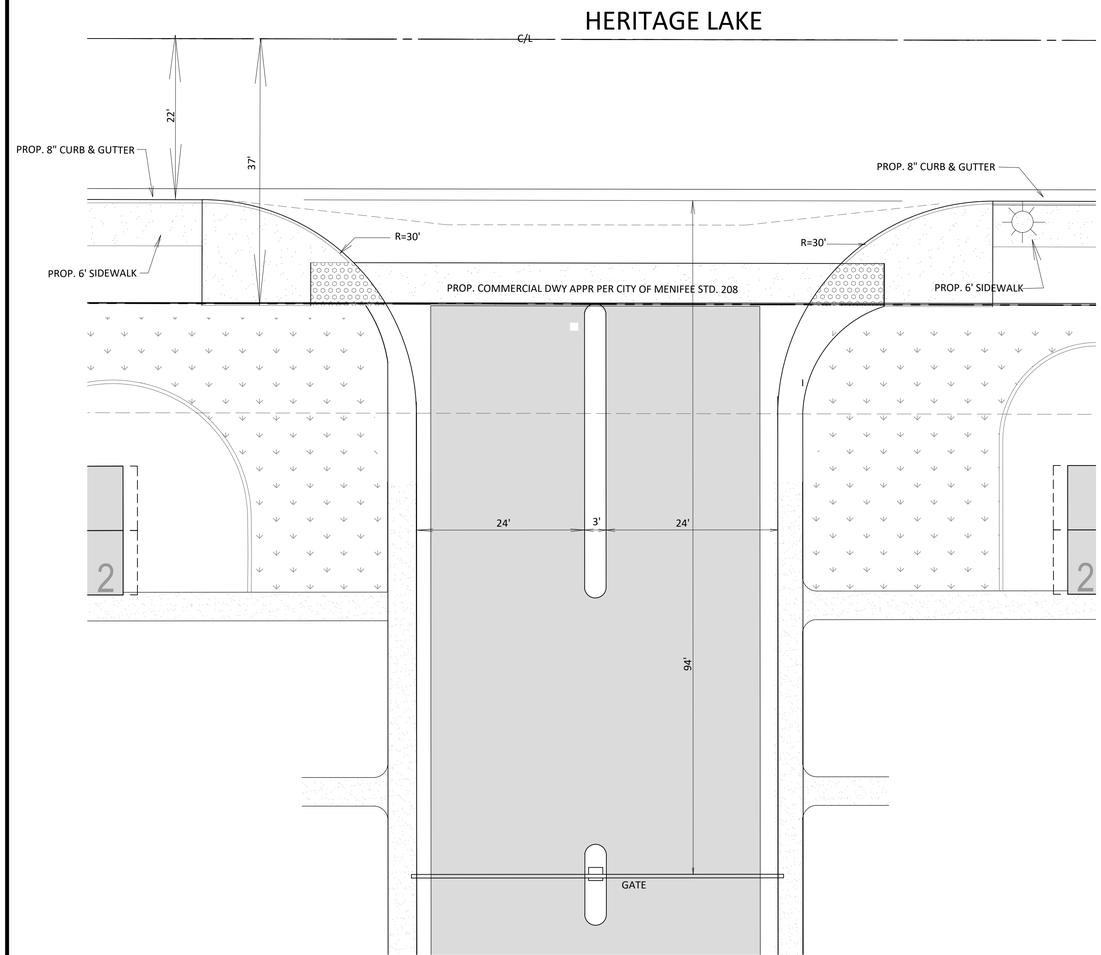
ENGINEER LOGO
Christiansen & Company
Land Development · Design · Engineering
Est. 2007
5225 Canyon Crest Drive, Ste 251
Riverside, California 92507
Ph: 951-323-4713 Fax: 951-405-8410
email:keith@ccocivil.com

ENGINEER SEAL
REGISTERED PROFESSIONAL ENGINEER
KEITH A CHRISTIANSEN
No. 50083
Civil
Exp. 06/30/2023
STATE OF CALIFORNIA

SCALE:	1" = 60'
DESIGN:	KAC
DRAWN:	CG
CHECKED:	KAC
APPROVED:	KAC
DATE:	DEC. 12, 2021

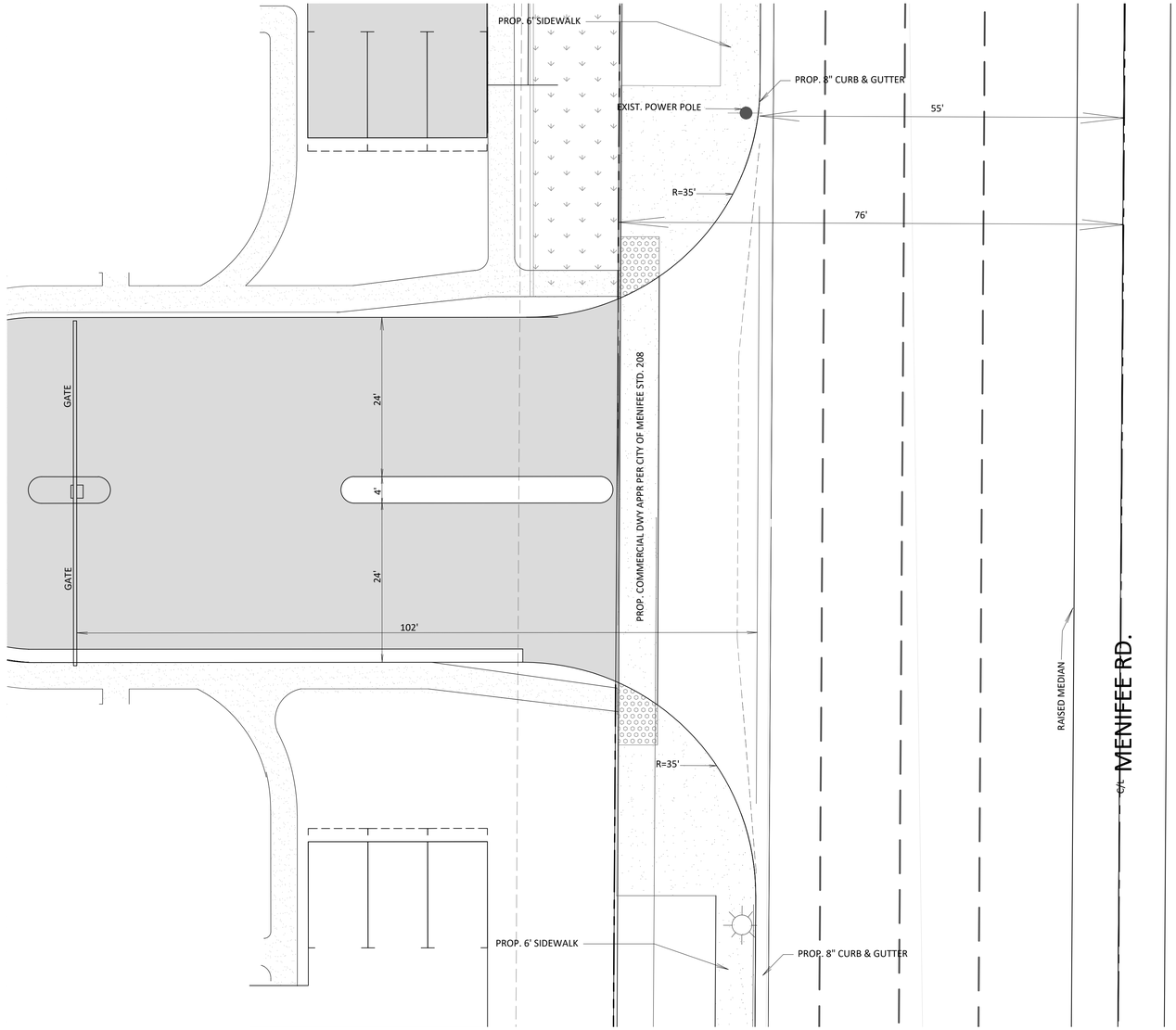
CITY OF MENIFEE
ENGINEERING DEPARTMENT
VILLAGE AT JUNIPERO
TENTATIVE TRACT MAP NO. 38340
96" CONTECH CHAMBER DETAILS

SHEET NO.
PRECGP-3
3 OF 4
PROJECT NO: GPXX-XXX



HERITAGE LAKE ENTRY W/ CITY OF MENIFEE STD. 208

SCALE 1"=10'



MENIFEE ROAD W/ CITY OF MENIFEE STD. 208 - RIGHT IN/RIGHT OUT

SCALE 1"=10'

DATE PREPARED:2/17/23

NOTE: ALL PLANS ARE PRELIMINARY UNLESS SIGNED BY ENGINEER OF RECORD OR LAND SURVEYOR.

BASIS OF BEARING:

THE CALIFORNIA STATE PLANE COORDINATE SYSTEM 1983 ZONE 6, 2007.00 EPOCH, BASED LOCALLY ON CONTROL STATIONS "BILL" AND "P477" , NAD83 (NSRS2011) BEING NORTH 28°53'23.27" EAST.

REVISIONS

SHT.	DESCRIPTION	DATE	BY	APRD

ENGINEER LOGO

5225 Canyon Crest Drive, Ste 251
Riverside, California 92507
Ph: 951-323-4713 Fax: 951-405-8410
email-keith@ccocivil.com

Christiansen & Company
Land Development · Design · Engineering
Est. 2007

ENGINEER SEAL

REGISTERED PROFESSIONAL ENGINEER
KEITH A. CHRISTIANSEN
No. 50083
Civil
Exp. 06/30/2023
STATE OF CALIFORNIA

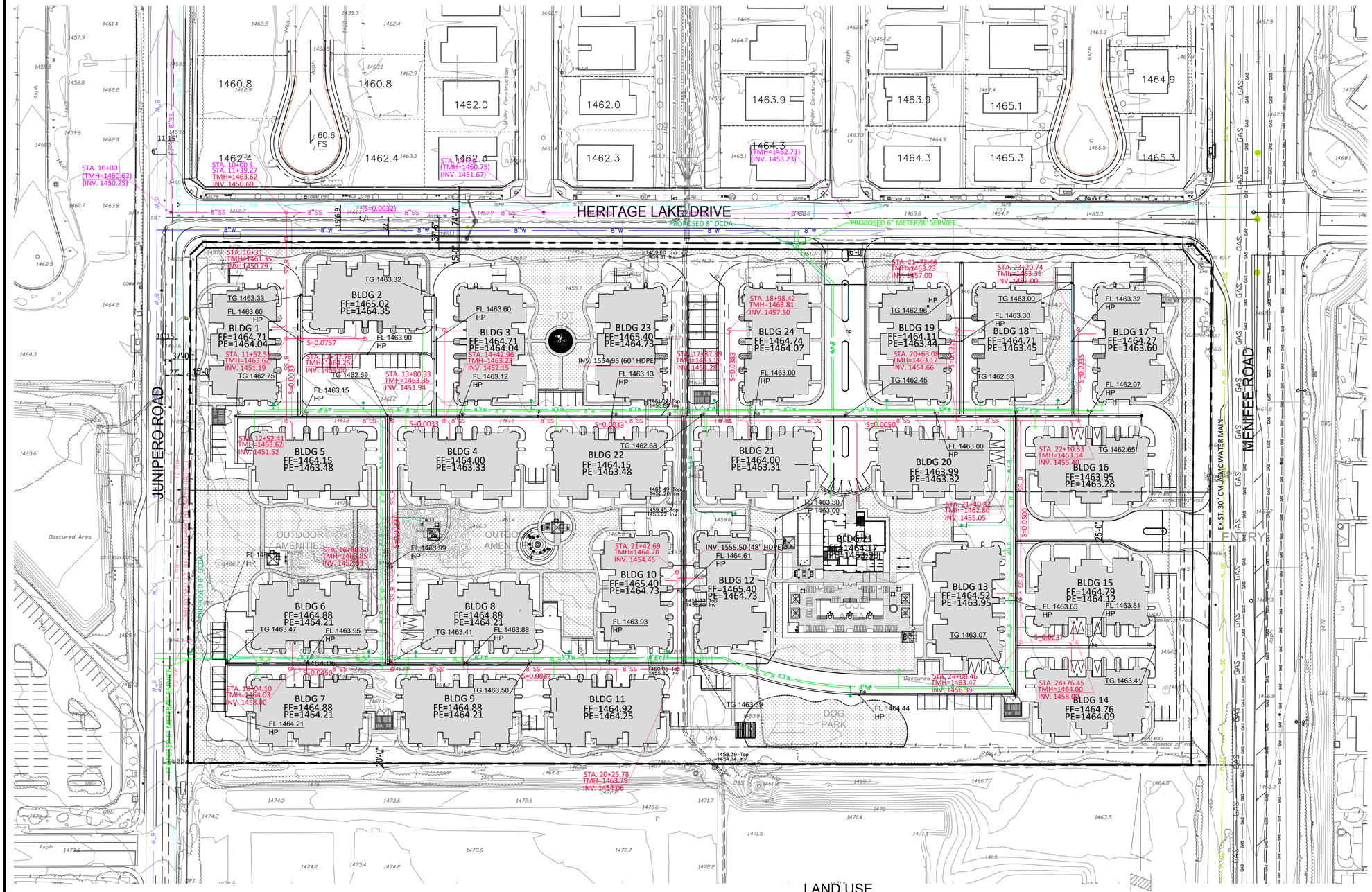
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DESIGN:	KAC
DRAWN:	CG
CHECKED:	KAC
APPROVED:	KAC
DATE:	DEC. 12, 2021

CITY OF MENIFEE
ENGINEERING DEPARTMENT

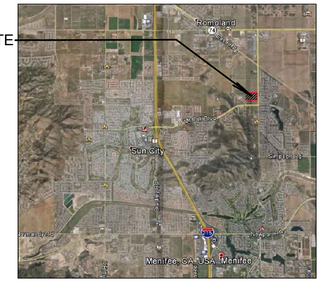
VILLAGE AT JUNIPERO
TENTATIVE TRACT MAP NO. 38340
ENTRY DETAILS

SHEET NO.
PRECGP-4
4 OF 4

PROJECT NO: GPXX-XXX



PROJECT SITE



VICINITY MAP NTS

OWNER/APPLICANT: NORTH BAYPORT INDUSTRIAL PARK II, LTD.
2245 W. 190TH STREET
TORRANCE, CALIFORNIA 90504
PH: (310) 326-2530 FAX: (310) 326-5113
CONTACT: DON CARRUTH
e-mail:DRC@TUFFLI.COM

ENGINEER/ REPRESENTATIVE: CHRISTIANSEN & COMPANY
5225 CANYON CREST DRIVE, STE. 251
RIVERSIDE, CALIFORNIA 92507
PH: (951) 323-4713 FAX: (951) 405-8410
CONTACT: KEITH CHRISTIANSEN, P.E.
e-mail: KEITH@CCOCIVIL.COM

ARCHITECT: HUMPHREYS & PARTNERS, ARCHITECTS, L.P.
2350 SE BRISTOL STREET, SUITE 310
NEWPORT BEACH, CALIFORNIA 92660
PH: (949) 955-9400 FAX: (949) 955-1897
CONTACT: SOONG KIM
e-mail: SOONG@HUMPHREYS.COM

GEOTECHNICAL: NorCal ENGINEERING
10641 HUMBOLT STREET
LOS ALAMITOS, CALIFORNIA 90720
PH:(562) 799-9469
CONTACT: STEVE SPENSIERO

ADDRESS: XXXX JUNIPERO ROAD
MENIFEE, CALIFORNIA 92224

ASSESSOR PARCEL NUMBERS: 333-070-018, 333-070-019 & 333-070-053

ACREAGE: 17.87 ACRES (gross) 17.27 ACRES (net)

FEMA MAP: PANEL: 06025C2060G
ZONE: X

THOMAS BROS.: PG 838, GRID F4, G4 - 2014 ED.

UTILITY PURVEYORS: WATER - EMWD
SEWER - EMWD
ELECTRIC- EDISON
GAS- SOUTHERN CAL GAS
PHONE- VERIZON
CABLE- TIME WARNER

SCHOOL DISTRICT: MENIFEE UNION SCHOOL DISTRICT

TOPOGRAPHY: DAWSON SURVEYING, INC.
575 E. CARREON DRIVE
COLTON, CA. 92324
CONTACT: BOB DAWSON
e-mail: robertd@dsils.com
DATE SURVEYED: 9/27/2021

LEGAL DESCRIPTION: LOTS 964, 965, 970 & 971 OF ROMOLA FARMS NO. 10 AS SHOWN BY MAP ON FILE IN BOOK 15 AT PAGES 29 THROUGH 31OF MAPS IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY,TOGETHER WITH THAT PORTION OF THE EASTERLY20 FEET OF LOT "H" (JUNIPERO ROAD) AS SHOWN ON SAID MAP VACATED BY THE BOARD OF SUPERVISORS OF THE COUNTY OF RIVERSIDE, RECORDED FEBRUARY 6, 1962 AS INSTRUMENT NO. 11656 OF OFFICIAL RECORDS.

LEGEND

- 8"SS — EXISTING 8" PVC SEWER MAIN
- 8"SS — PROPOSED 8" PVC SEWER MAIN
- 8"W — EXISTING 8" PVC WATER MAIN
- 8"W — PROPOSED 8" PVC WATER MAIN
- 8"FW — PROPOSED 8" PVC FIRE LINE
- 8"W — PROPOSED 8" PVC PRIVATE WATER MAIN
- 12"RW — EXISTING 12" PVC RECYCLED WATER MAIN
- 12"RW — PROPOSED 12" PVC RECYCLED WATER MAIN
- PROP. 6" SEWER LATERAL
- PROP. 2" WATER SERVICE
- PROP. 6" FH ASSY

NOTE: ALL PRIVATE SEWR AND WATER ARE 12' APART (6' FROM AISLE C/L)

LAND USE

EXISTING: VACANT
PROPOSED: RESIDENTIAL-APARTMENT

ZONING

EXISTING: R-2
PROPOSED: R-2

GENERAL PLAN DESIGNATION = MDR

0 30 60 120 180 240
SCALE: 1"= 60'

NOTES:

STREET VACATIONS FOR THE NORTH SOUTH ROAD THROUGH THE CENTER OF PROJECT SHALL BE PART OF FINAL MAPPING OF TENTATIVE TRACT NO. 38340.
PROPERTY IS NOT SUBJECT TO LIQUEFACTION OR OTHER GEOLOGIC HAZARDS.
PROPERTY IS NOT SUBJECT TO OVERFLOW, INUNDATION OR FLOOD HAZARD.

DATE PREPARED:12/16/21

Call before you Dig
Avoid cutting underground utility lines. It's costly.
Call 811
OR
1-800-227-2600

REVISIONS

SHT.	DESCRIPTION	DATE	BY	APRD

ENGINEER LOGO

Christiansen & Company
Land Development · Design · Engineering
Est. 2007

5225 Canyon Crest Drive, Ste 251
Riverside, California 92507
Ph: 951-323-4713 Fax: 951-405-8410
email-keith@ccocivil.com

ENGINEER SEAL

REGISTERED PROFESSIONAL ENGINEER
KEITH A. CHRISTIANSEN
No. 50083
Civil
Exp. 06/30, 2023
STATE OF CALIFORNIA

SCALE: 1" = 60'
DESIGN: KAC
DRAWN: CG
CHECKED: KAC
APPROVED:KAC
DATE: DEC. 12, 2021

CITY OF MENIFEE
ENGINEERING DEPARTMENT

JONATHAN G. SMITH RCE 61253 DATE
DIRECTOR OF PUBLIC WORKS/ EXP. 6/30/23
CITY ENGINEER

RECOMMENDED BY: DATE

SEAL

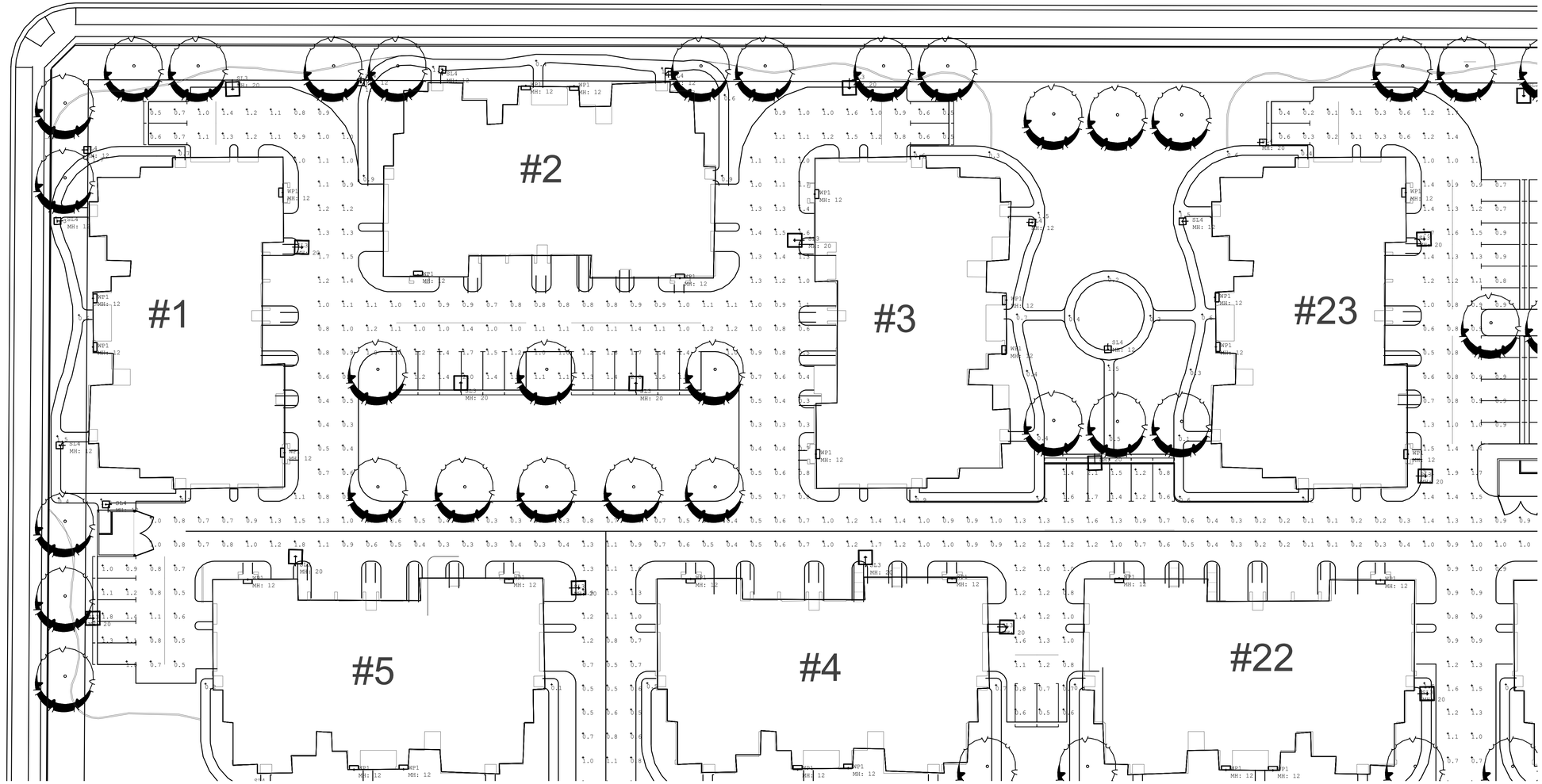
CITY OF MENIFEE ENGINEERING DEPARTMENT

VILLAGE AT JUNIPERO
Tentative Tract Map No. 38340
Preliminary Water & Sewer Plan

SHEET NO. PWS-1
1 OF 1
PROJECT NO: PWS

HERITAGE LAKE DRIVE

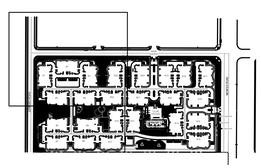
JUNIPERO ROAD



Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Roads and Parking	Illuminance	Fc	0.92	3.9	0.1	9.20	39.00
Walkway	Illuminance	Fc	0.77	1.9	0.1	7.70	19.00

Luminaire Schedule							
Symbol	Qty	Label	LLF	Description	Tag	Lum. Watts	Lum. Lumens
	10	SL2-VP-L-96E2-170-AMB-2	0.930	VP-L-96E2-170-AMB-2	SL2	170	5398
	100	WP1-FLO11O6LS	0.930	FLO11O6LS	WP1	6	598
	4	SL5-VP-L-96E2-170-AMB-5R	0.930	VP-L-96E2-170-AMB-5R	SL5	170	5455
	38	SL3-VP-L-96E2-170-AMB-3	0.930	VP-L-96E2-170-AMB-3	SL3	170	5395
	57	SL4-7080-B12-40K	0.930	7080-B12-40K	SL4	12	1254

KEY PLAN



E-1

THE VILLAGE AT JUNIPERO
MENIFEE, CALIFORNIA HPA# 2014141

SITE PHOTOMETRIC CALCULATIONS -A

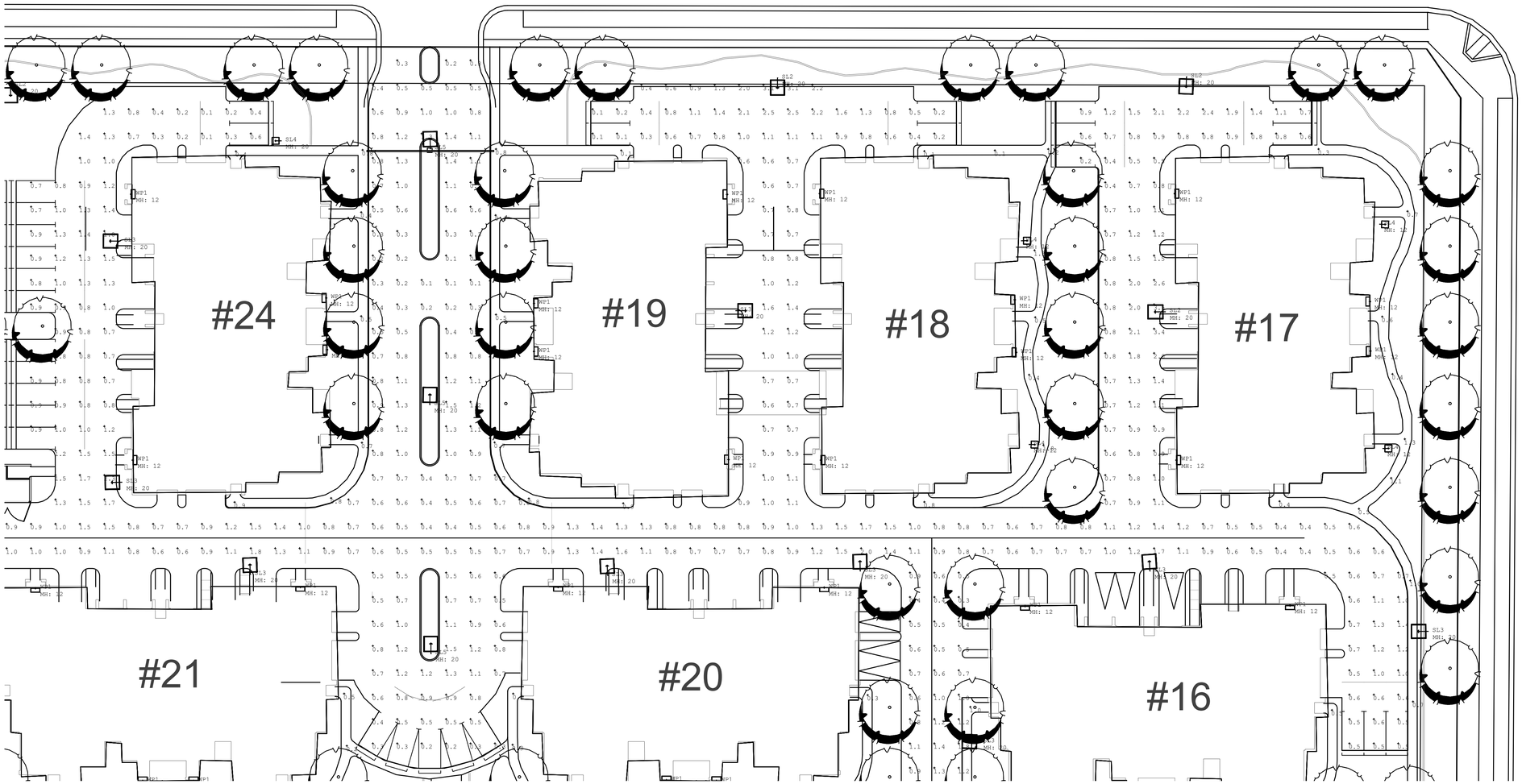
CHRISTIANSEN & CO.

HUMPHREYS & **PARTNERS** ARCHITECTS, L.P.
5339 Alpha Rd., Suite 300, Dallas, TX 75240 | 972.701.9636 | www.humphreys.com

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HERITAGE LAKE DRIVE

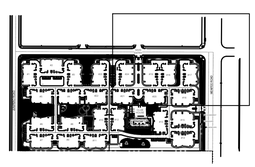
MENIFEE ROAD



Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Roads and Parking	Illuminance	Fc	0.92	3.9	0.1	9.20	39.00
Walkway	Illuminance	Fc	0.77	1.9	0.1	7.70	19.00

Luminaire Schedule							
Symbol	Qty	Label	LLF	Description	Tag	Lum. Watts	Lum. Lumens
	10	SL2-VP-L-96E2-170-AMB-2	0.930	VP-L-96E2-170-AMB-2	SL2	170	5398
	100	WP1-FLO1106LS	0.930	FLO1106LS	WP1	6	598
	4	SL5-VP-L-96E2-170-AMB-5R	0.930	VP-L-96E2-170-AMB-5R	SL5	170	5455
	38	SL3-VP-L-96E2-170-AMB-3	0.930	VP-L-96E2-170-AMB-3	SL3	170	5395
	57	SL4-7080-B12-40K	0.930	7080-B12-40K	SL4	12	1254

KEY PLAN



E-2

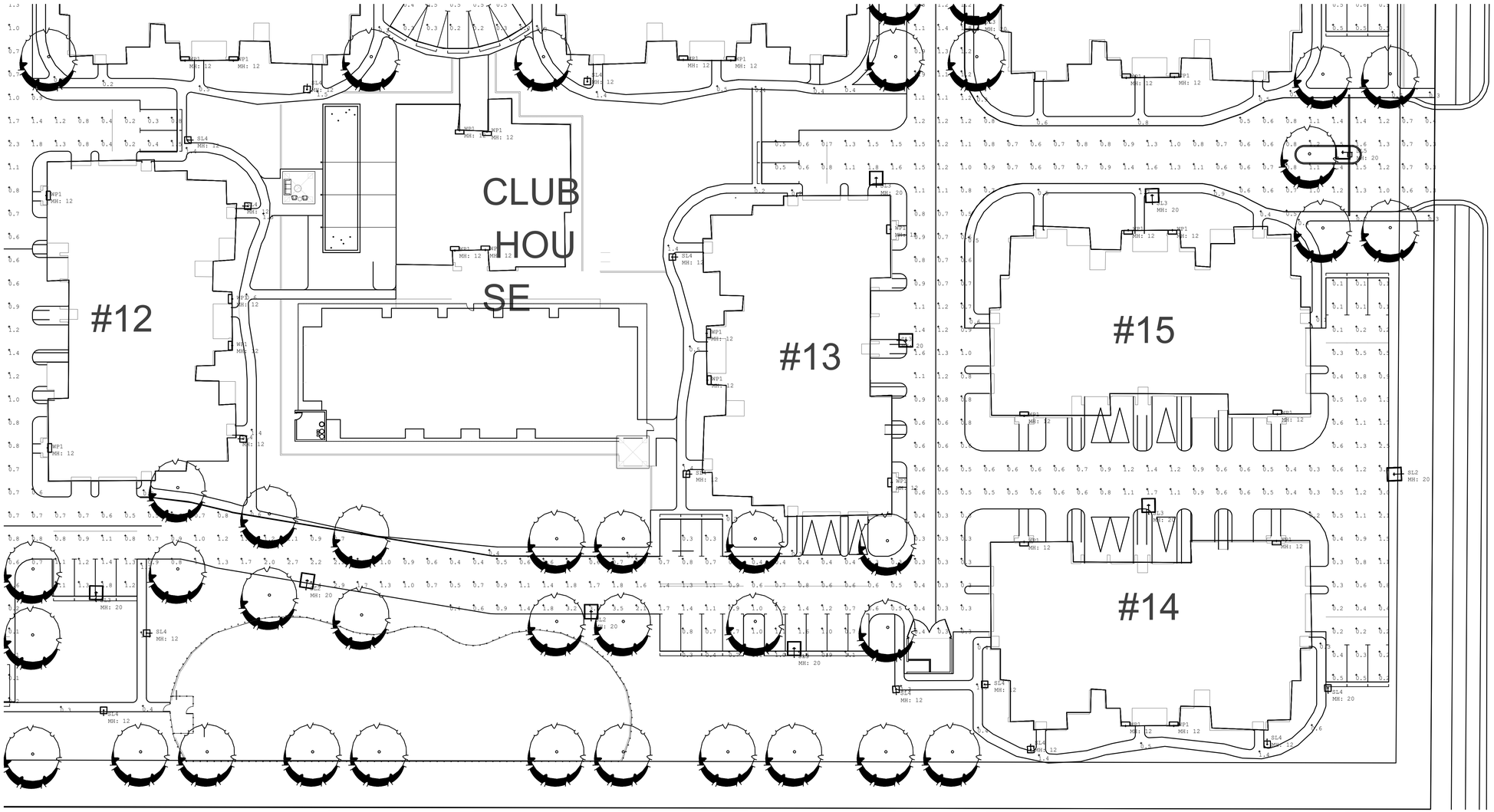
THE VILLAGE AT JUNIPERO
MENIFEE, CALIFORNIA HPA# 2014141

SITE PHOTOMETRIC CALCULATIONS - B

CHRISTIANSEN & CO.

HUMPHREYS & PARTNERS ARCHITECTS, L.P.
5339 Alpha Rd., Suite 300, Dallas, TX 75240 | 972.701.9636 | www.humphreys.com

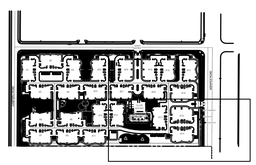
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Calculation Summary							
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Roads and Parking	Illuminance	Fc	0.92	3.9	0.1	9.20	39.00
Walkway	Illuminance	Fc	0.77	1.9	0.1	7.70	19.00

Luminaire Schedule							
Symbol	Qty	Label	LLF	Description	Tag	Lum. Watts	Lum. Lumens
	10	SL2-VP-L-96E2-170-AMB-2	0.930	VP-L-96E2-170-AMB-2	SL2	170	5398
	100	WP1-FLO11O6LS	0.930	FLO11O6LS	WP1	6	598
	4	SL5-VP-L-96E2-170-AMB-5R	0.930	VP-L-96E2-170-AMB-5R	SL5	170	5455
	38	SL3-VP-L-96E2-170-AMB-3	0.930	VP-L-96E2-170-AMB-3	SL3	170	5395
	57	SL4-7080-B12-40K	0.930	7080-B12-40K	SL4	12	1254

KEY PLAN



E-3

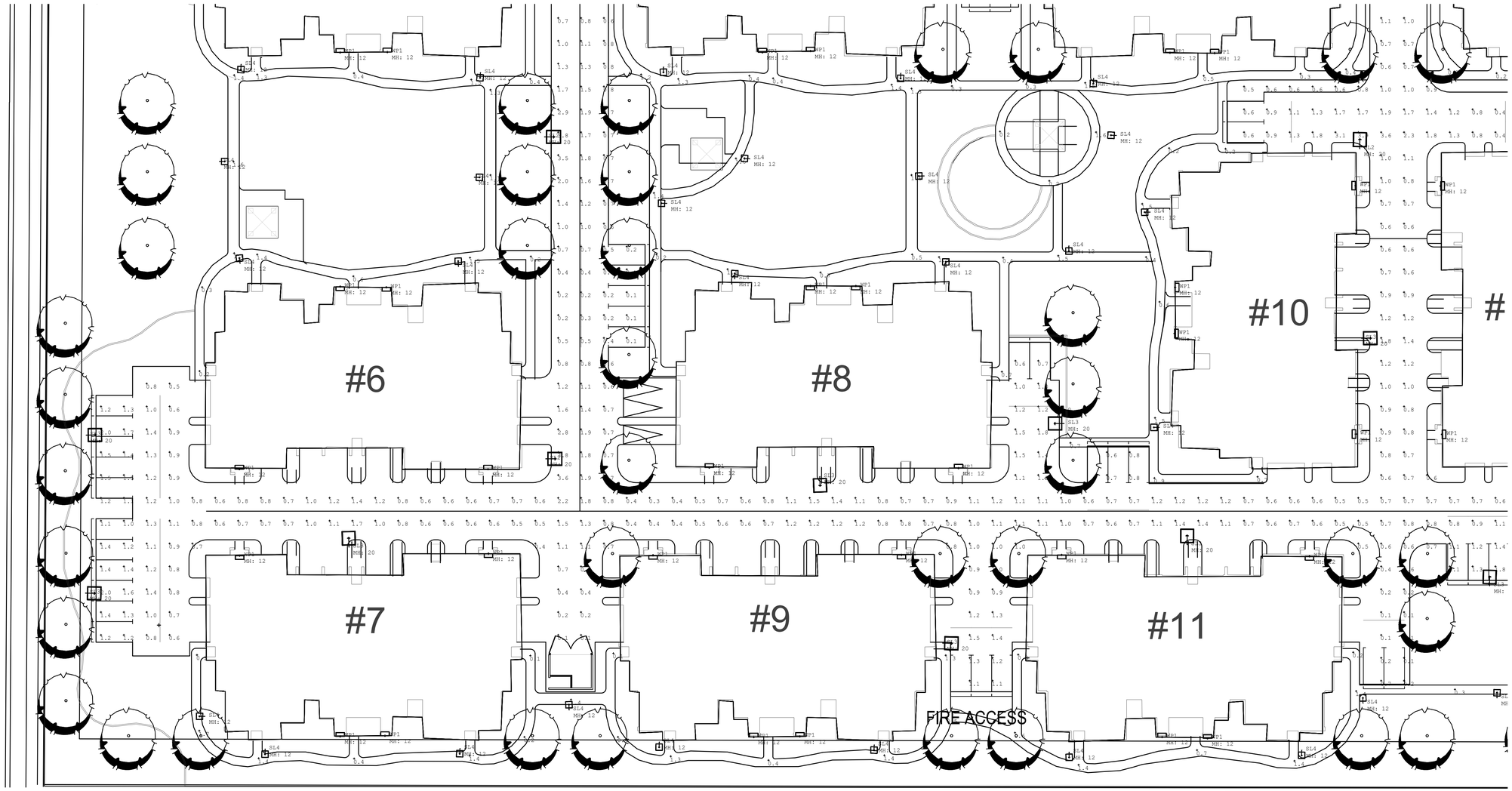
THE VILLAGE AT JUNIPERO
MENIFEE, CALIFORNIA HPA# 2014141

SITE PHOTOMETRIC CALCULATIONS - C

CHRISTIANSEN & CO.

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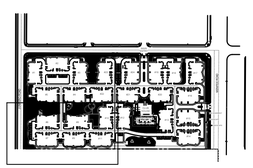
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Symbol	Qty	Label	LLF	Description	Tag	Lum. Watts	Lum. Lumens
	10	SL2-VP-L-96E2-170-AMB-2	0.930	VP-L-96E2-170-AMB-2	SL2	170	5398
	100	WP1-FLO11O6LS	0.930	FLO11O6LS	WP1	6	598
	4	SL5-VP-L-96E2-170-AMB-5R	0.930	VP-L-96E2-170-AMB-5R	SL5	170	5455
	38	SL3-VP-L-96E2-170-AMB-3	0.930	VP-L-96E2-170-AMB-3	SL3	170	5395
	57	SL4-7080-B12-40K	0.930	7080-B12-40K	SL4	12	1254

KEY PLAN



E-4

THE VILLAGE AT JUNIPERO
MENIFEE, CALIFORNIA HPA# 2014141

SITE PHOTOMETRIC CALCULATIONS - D

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VIPER L OPTICS STRIKE

LARGE VIPER LUMINAIRE

Cat.#

Job

Type

SL2,SL3,SL5

BEACON design . performance . technology

Approvals

SPECIFICATIONS

Intended Use:

The Beacon Viper luminaire is available in two sizes with a wide choice of different LED wattage configurations and optical distributions designed to replace HID lighting up to 1000W MH or HPS. Luminaires are suitable for wet locations.

Construction:

- Manufactured with die cast aluminum.
- Coated with a polyester finish that meets ASTM B117 corrosion test requirements and ASTM D522 cracking and loss of adhesion test requirements.
- External hardware is corrosion resistant.
- One piece optical cartridge system consisting of an LED engine, LED lamps, optics, gasket and stainless steel bezel.
- Cartridge is held together with internal brass standoffs soldered to the board so that it can be field replaced as a one piece optical system.
- Two-piece silicone and microcellular polyurethane foam gasket ensures a weather-proof seal around each individual optic.

Electrical:

- Luminaire accepts 100V through 277V, 50 Hz to 60 Hz (UNV), 347V, or 480V input.
- Power factor is ≥ .90 at full load.
- Dimming Drivers are standard and dimming leads are extended out of the luminaire unless control options require connection to the dimming leads. Must specify if wiring leads are to be greater than the 6" standard.
- Component-to-component wiring within the luminaire may carry no more than 80% of rated load and is certified by UL for use at 600VAC at 90°C or higher.
- Plug disconnects are certified by UL for use at 600 VAC, 13A or higher. 13A rating applies to primary (AC) side only.
- Fixture electrical compartment shall contain all LED driver components
- Optional 7-pin ANSI C136.41-2013 twist-lock photo control receptacle available. Compatible with ANSI C136.41 external wireless control devices.
- Ambient operating temperature -40°C to 40°C
- Surge protection - 20kA.
- Lifeshield™ Circuit - protects luminaire from excessive temperature. The device shall activate at a specific, factory-preset temperature, and progressively reduce power over a finite temperature range. Operation shall be smooth and undetectable to the eye. Thermal circuit is designed to "fail on", allowing the luminaire to revert to full power in the event of an interruption of its power supply, or faulty wiring connection to the drivers. The device shall be able to co-exist with other 0-10V control devices (occupancy sensors, external dimmers, etc.).
- Please consult brand or sales representative when combining control and electrical options as some combinations may not operate as anticipated depending on your application.

Installation:

- Mounting options for horizontal arm, vertical tenon or traditional arm mounting available. Mounting hardware included.

Finish:

- IFS polyester powder-coat electrostatically applied and thermocured. IFS finish consists of a five stage pretreatment regimen with a polymer primer sealer and top coated with a thermoset super TGIC polyester powder coat finish.
- The finish meets the AAMA 2604 performance specification which includes passing a 3000 hour salt spray test for corrosion resistance and resists cracking or loss of adhesion per ASTM D522 and resists surface impacts of up to 160 inch-pounds.

Certifications/Ratings:

- Certified to UL 1598, UL 8750, and CSA C22.2
- 3G rated for ANSI C136.31 high vibration applications with MAF mounting
- IDA approved
- This product is approved by the Florida Fish and Wildlife Conservation Commission.

Warranty:

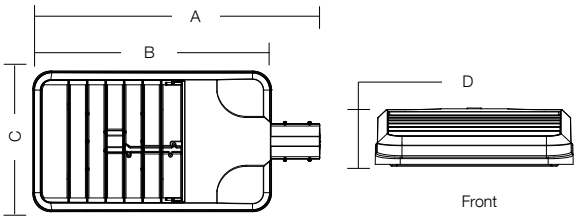
Five year limited warranty for more information visit:
www.hubbelllighting.com/resources/warranty

PRODUCT IMAGE(S)

Turtle Friendly

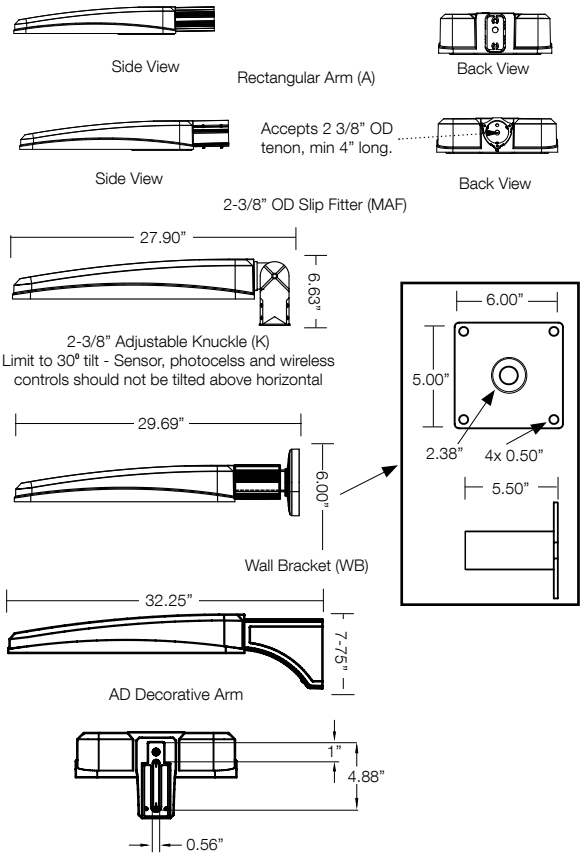


DIMENSIONS



A	B	C	D	Weight:	EPA
29.9" (741 mm)	24.19" (614 mm)	14.25" (362 mm)	4.13" (105 mm)	25.0 lbs (11.3 kg)	1.2 ft²

MOUNTING OPTIONS



CERTIFICATIONS/LISTINGS

*3000K and warmer CCTs only

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ORDERING INFORMATION ORDERING EXAMPLE: VPL/96L-170/AM/4W/UNV/A/DBT/7PR-TL/GENI-04/BC

VPL										
SERIES	LED ENGINE	CCT	ROTATION	VOLTAGE	COLOR	OPTIONS

SERIES
- **VPL** Viper

LED ENGINE
- **64L-115** 115 W LED array
- **80L-140** 140W LED array
- **96L-170** 170W LED array

CCT
- **AM** Amber

ROTATION
- Leave blank for no rotation
- **L**[1] Optic rotation left
- **R**[1] Optic rotation right

VOLTAGE
- **UNV** 120-277V
- **120** 120V
- **208** 208V
- **240** 240V
- **277** 277V
- **347** 347V
- **480** 480V

COLOR
- **BLT** Black Matte Textured
- **BLS** Black Gloss Smooth
- **DBT** Dark Bronze Matte Textured
- **DBS** Dark Bronze Gloss Smooth
- **GTT** Graphite Matte Textured
- **LGS** Light Grey Gloss Smooth
- **PSS** Platinum Silver Smooth
- **WHT** White Matte Textured
- **WHS** White Gloss Smooth
- **VGT** Verde Green Textured

COLOR OPTION
- **CC** Custom Color

OPTIONS
- **CD** Continuous Dimming
- **F** Fusing
- **BSP** Bird Spikes
- **BC** Backshield (available for FR, 2, 3, 4, 4W Optics)
- **TB** Terminal Block

DISTRIBUTION
- **FR** Type 1/Front Row
- **2** Type 2
- **3** Type 3
- **4F (formerly 4)** Type 4
- **4W** Type 4 Wide
- **5QM** Type 5QM
- **5QN** Type 5QN
- **5R** Type 5R (rectangular)
- **5W** Type 5W (round wide)
- **TC** Tennis Court

MOUNTING
- **A** Rectangular Arm (formerly RA) for square or round pole
- **MAF** Mast Arm Fitter (formerly SF2) for 2-3/8" OD horizontal arm
- **K** Knuckle (formerly PK2) limit to 30° tilt or 2-3/8" OD horizontal arm or vertical tenon
- **WB** Wall Bracket
- **AD** Universal Arm for square pole
- **AD3** Universal Arm for 2.4"-4.1" round pole
- **AD4** Universal Arm for 4.2" -5.3" round pole
- **AD5** Universal Arm for 5.5" -5.9" round pole
- **AD6** Universal Arm for 6.0"-6.5" round pole

CONTROL OPTIONS
- **7PR** 7-Pin Receptacle only (shorting cap, photo control, or wireless control provided by others)
- **PCR-SC** 7-Pin Receptacle w/Shorting Cap
- **PCR-TL** 7-Pin Receptacle w/Twist Lock photo control

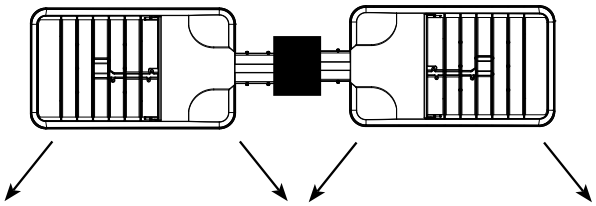
HOUSE SIDE SHIELD ACCESSORIES
- **HSS/EVP-L/90-FB/XXX** 90° shield front or back
- **HSS/EVP-L/90-LR/XXX** 90° shield left or right
- **HSS/EVP-L/270-FB/XXX** 270° shield front or back
- **HSS/EVP-L/270-LR/XXX** 270° shield left or right
- **HSS/EVP-L/360/XXX** Full shield

(Replace XXX with notation for desired finish color)
(Refer to page 5 for shield images)

MOUNTING ACCESSORIES
- **VPL-AD-RPA3** 2.4"-4.1" Round Pole Adapter for AD arm
- **VPL-AD-RPA4** 4.2"-5.3" Round Pole Adapter for AD arm
- **VPL-AD-RPA5** 5.5"-5.9" Round Pole Adapter for AD arm
- **VPL-AD-RPA6** 6.0"-6.5" Round Pole Adapter for AD arm

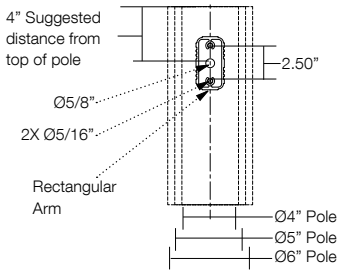
[1] Only available with FR, 2, 3, 4, 4W and 5R distributions

LEFT ROTATED OPTIC **RIGHT ROTATED OPTIC**



DRILL PATTERN

RECTANGULAR ARM (A)
Compatible with Pole drill pattern B3



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PERFORMANCE DATA

# LED'S	DRIVE CURRENT	SYSTEM WATTS	DISTRIBUTION TYPE	AMB amber 590nm (std.) LUMENS	LPW[1]	B	U	G
64	700mA	115W	FR	3731	32	1	0	0
			2	3528	31	1	0	1
			3	3534	31	1	0	1
			4	3454	30	0	0	1
			4W	3409	30	1	0	2
			5QM	3534	31	2	0	0
			5QN	3691	32	2	0	0
			5R	3565	31	2	0	2
			5W	3379	29	2	0	1
80	700mA	140W	FR	4757	34	1	0	1
			2	4498	32	1	0	1
			3	4506	32	1	0	1
			4	4403	31	1	0	2
			4W	4262	30	1	0	2
			5QM	4506	32	2	0	1
			5QN	4706	34	1	0	0
			5R	4546	32	2	0	2
			5W	4308	31	3	0	1
96	700mA	170W	FR	5709	33	1	0	1
			2	5400	30	1	0	1
			3	5407	31	1	1	3
			4	5284	30	1	0	2
			4W	5147	30	1	0	2
			5QM	5408	31	2	0	1
			5QN	5647	32	2	0	0
			5R	5455	31	3	0	3
			5W	5169	30	3	0	1

# LED'S	DRIVE CURRENT	SYSTEM WATTS	DISTRIBUTION TYPE	AMB amber 590nm (std.) LUMENS	LPW[1]	B	U	G
64	700mA	115W	FR-BC	2996	26	0	0	0
			2-BC	2614	23	0	0	1
			3-BC	2499	22	0	0	1
			4-BC	2730	24	0	0	1
			4W-BC	2140	19	0	0	1
80	700mA	140W	FR-BC	3820	27	1	0	0
			2-BC	3268	23	0	0	1
			3-BC	3124	22	0	0	1
			4-BC	3413	24	0	0	1
			4W-BC	2728	19	0	0	1
96	700mA	170W	FR-BC	4584	26	1	0	0
			2-BC	3921	22	0	0	1
			3-BC	3749	21	0	0	1
			4-BC	4095	23	0	0	1
			4W-BC	3274	19	0	0	1

[1] Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown. Actual performance may differ as a result of end-user environment and application.
[2] 315W and 395W 3000K versions are not DLC QPL listed. Reference highlighted cells in table.

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COLONIAL

PROJECT:	
MODEL #:	
FIXTURE TYPE:	SL4

STANDARD SPECIFICATIONS

HOUSING
The traditional styling is constructed from an injection molded UV stabilized polycarbonate housing.

DIFFUSER
UV stabilized acrylic panels slip easily into position on all four sides of the housing. The panels are frosted to create a soft glow of light and disguise the lamp source.

LED PERFORMANCE - 3500K STANDARD
120-277V - 3500K, 82 CRI - L80 rating - 60,000 hrs - L70 rating (projected) - 100,000 hrs
Amperage rated @ 110V input
Operating ambient temperature: -20°C / -4°F - 40°C / 104°F

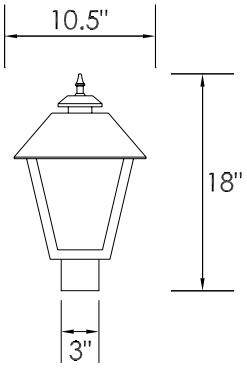
Delivered 3500K lumens noted. Consult Brownlee.com for performance of all CCTs.
B12 - 12W nominal, .10 A input - 1254 lm. Dimmable (0-10V).
C17 - 16W nominal, .15 A input - 1812 lm. Dimmable (0-10V).
C24 - 23W nominal, .20 A input - 2486 lm. Dimmable (0-10V).

MOUNTING
The 7080 series has a fitter designed for 3" diameter poles.

FINISH
This series is available in a standard black polyester powder coat.

WARRANTY
3 year limited warranty on this LED product. Consult factory for details.





WET

SUPPORTS T24 COMPLIANCE

ORDERING INFORMATION

7080	- B12	- 35K	-
Model	2.	3.	4. (if required)

2. WATTAGE

B12	12W B Series LED
C17	16W C Series LED
C24	23W C Series LED

3. COLOR TEMPERATURE

35K	3500K standard color temperature
27K	2700K color temperature
30K	3000K color temperature
40K	4000K color temperature

4. AVAILABLE OPTIONS

BAC[1]	Buy American Compliant
ECW[5]	Extreme Cold Weather (-40°C / -40°F min.)
ES[6]	ENERGY STAR®
FCL[7]	French Canadian Labels
HSS	House-side Shield
T24[9]	Title 24 JA8 Compliant (B12 & C24 in 3000K only)

Notes: (0) 90R - cannot be combined with ES. **1) BAC** - cannot be combined with FCL. **(2) BBI/BBS/BBC**- cannot be combined with ECW, EXT, or T24. **(3) BLD** - includes integral OCC sensor (do not combine with OCC option). Cannot be combined with DTR or T24. **(4) DTR** - cannot be combined with BLD or T24. **(5) ECW** - cannot be combined with BBI, BBC, or DTR. **(6) ES** - cannot be combined with 90R or T24. **(7) FCL** - cannot be combined with BAC or T24. **(8) OCC** - integral ON/OFF occupancy sensor. **(9) T24** - includes JA8 labeling and 90 CRI LEDs (do not combine with 90R option). Cannot be combined with BBI, BBC, BBS, BLD, DTR, ES, or FCL. **(10) BBS** - cannot be combined with BLD, ECW, EXT, OCC, or T24. **(11) PCH/PC4** - cannot be combined with BLD or OCC.
Add'l Notes: *BBI/BBS/BBC - standard BBI (and BBS) option has a minimum operating temperature of 10C/50F. BBC option has a minimum operating temperature of -20C/-4F. ****BLD** - integral OCC sensor with onboard control. 1: Motion is detected, illuminate to 100%. 2: Motion no longer detected, dim to 50% (factory default), 30%, 20% or 10%. 3: Remain in continuous dimmed state (factory default) or turn off after set period.

Specifications and dimensions subject to change without notice.
Consult your Brownlee Lighting representative for availability and ordering information.

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REVISED
2020.12.28

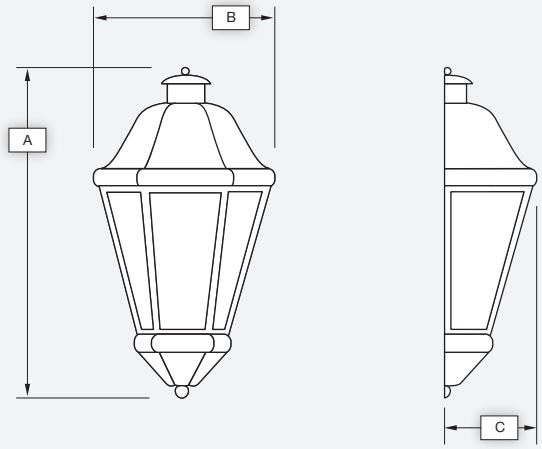
EVERGREEN LIGHTING

Catalog #		Type
Project		WP1
Description		Date

FLORENCE

WALL MOUNT





Standard Features

Material
Paintlok sheet; Standard Powdercoat Finish, White Acrylic Lens; .125 thickness, ETL Wet Location.

Installation
Mounting/wireway hole in center of backplate. Supplied with standard mounting hardware to mount to a 4" J-box or plaster ring.

Optics*
Contact Evergreen Lighting for complete photometrics.

LED Features

LED
Alta LED #AL-R-1W-30LED array to be mounted onto an Aluminum MPCB Board configured to the proper wattage. The LED arrays will be centered within the Lens area and mounted on a white aluminum reflective plate.

Driver
Specific Drivers will be matched with each different LED array configuration/wattage.
Standard Driver Features:
- Constant Current
- 3 / 5 year warranty
- 120/277 multi-voltage power supplies
- Kelvin - 2700K, 3000K, 3500K, 4100K, 5000K

Fluorescent Features

Ballast
SC programmed electronic high power factor ballast, multivoltage 120V/277V.
Lamps not included

Finishes

Ballast

Architectural Bronze (AB)	Textured Gold (TG)
Textured Bronze (TBR)	Metallic Nickel (MN)
Matte Black (MBK)	Textured Verde Patina (TVP)
Semi Gloss Black (GBK)	Satin Brass (SB)
Textured Black (TBK)	Copper Vein (CV)
Textured Rust (TR)	Gold Vein (GV)
Matte White (MW)	Silver Vein (SV)
Textured White (TW)	Chrome (CH)
Gloss White (GW)	Oil Rubbed Bronze (ORB)
Metallic Grey (MG)	

Options*

Emergency (EMR)	Special Lens
Photocell (PC)	Incandescent
Lamp Sources	
Size Modifications	
Vandal Proof Enclosure (VPE)	

Sample Spec Number: FLO1103Q-AB-A

Part #	Lamp/Watts	Lumens	A	B	C
FLO1103Q	13Q	800	16	9-1/4	4
FLO1105T	26T	1800	16	9-1/4	4
FLO1204Q	2-13Q	1600	18	11	4-3/4
FLO1205	26Q	1800	18	11	4-3/4
FLO1211	32T	2200	18	11	4-3/4
FLO1304Q	2-13Q	1600	25	14	6
FLO1306	2-26Q	3600	25	14	6
FLO1322	42T	3200	25	14	6
FLO1106L	6LED	600	16	9 1/4	4
FLO1110L	10LED	1000	16	9 1/4	4
FLO1212L	12LED	1200	18	11	4 3/4
FLO1220L	20LED	2000	18	11	4 3/4
FLO1324L	24LED	2400	25	14	6
FLO1340L	40LED	4000	25	14	6
DARK SKY					
FLO1109LS	9LED	900	16	9 1/4	4
FLO1215LS	15LED	1500	18	11	4 3/4
FLO1320LS	20LED	2000	25	14	6

*Consult Factory

MADE IN CALIFORNIA

Evergreen Lighting
1379 Ridgeway Street, Pomona, CA 91768
Ph: 909-865-5599 Fax: 909-865-5539
www.evergreenlighting.com

October 16, 2022

MIG
Attention: *Kent Norton*
1650 Spruce Street, Suite 106
Riverside, California 92057

SUBJECT: **Habitat Assessment and Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) Consistency Analysis for the Proposed "Village at Junipero" Project Located within Assessor Parcel Numbers (APNs) 333-070-018, -019, and -053 in the City of Menifee, Riverside County, California**

Introduction

This report contains the findings of ELMT Consulting's (ELMT) habitat assessment and Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) consistency analysis for the proposed "Village at Junipero" project (project site or site) located in the City of Menifee, Riverside County, California. The habitat assessment was conducted by ELMT biologist Travis J. McGill on July 29, 2022, to update baseline conditions, previously assessed in March 2020, and to re-evaluate the potential for special-status[1] plant and wildlife species to occur within the proposed project site that could pose a constraint to implementation of the proposed project. Special attention was given to the suitability of the on-site habitat to support burrowing owl (*Athene cunicularia*) and several other special-status species identified by the California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB) and other electronic databases as potentially occurring on or within the general vicinity of the project.

The Western Riverside County Regional Conservation Authority (RCA) MSHCP Information Map was queried to determine if the MSHCP identifies any potential survey requirements for the project. Further, the project site was reviewed against the MSHCP to determine if the site is located within any MSHCP areas including Criteria Cells (core habitat and wildlife movement corridors) or areas proposed for conservation. Based on the RCA MSHCP Information Map query and review of the MSHCP, it was determined that the project site is located within the Sun City/Menifee Valley Area Plan of the MSHCP but is not located within any Criteria Cells or MSHCP Conservation Areas. Further, it was determined that the project site is only located within the designated survey area for burrowing owl (*Athene cuincularia*).

1 As used in this report, "special-status" refers to plant and wildlife species that are federally, State, and MSHCP listed, proposed, or candidates; plant species that have been designated with a California Native Plant Society Rare Plant Rank; wildlife species that are designated by the CDFW as fully protected, species of special concern, or watch list species; and specially protected natural vegetation communities as designated by the CDFW.

Project Location

The project site is generally located east of Interstate 215, south of State Route 74, west of State Route 79, and north of Domenigoni Parkway in the City of Menifee, Riverside County, California. The project site is depicted on the Romoland quadrangle of the United States Geological Survey's (USGS) 7.5-minute topographic map within Section 23 of Township 5 South, Range 3 West. Specifically, the project site is bordered by Menifee Road on its eastern boundary, Junipero Road on its western boundary, a new residential development to the north, approximately 600 feet north of McCall Boulevard within Assessor Parcel Numbers (APN) 333-070-018, -019, and -053. Refer to Exhibits 1- 3 in Attachment A.

Project Description

The "Village at Junipero" Project (Major Plot Plan No. PLN22-0030) is being proposed in the City of Menifee (City). The 19.25-acre project site is currently vacant and located north of McCall Blvd, east of Junipero Road, south of Heritage Lakes Drive, and west of Menifee Road (APN: 333-070-018, 333-070-019 & 333-070-053). The site is adjacent to existing residential uses to the east, approved residential uses to the north, approved commercial uses to the south, and Boulder Ridge Elementary School to the west.

This project is a proposed multi-family residential development of 240 market-rate apartments with a gross density of 12.5 units per acre. The proposed apartment complex consists of 24 buildings containing ten (10) units per building with individual unit sizes ranging from one to three bedrooms. Each unit containing a one- or two-car garage and a total of 480 surface parking spaces are proposed. The project proposes a community pool area and clubhouse, along with additional community gathering areas such as a tot lot, a dog park, and internal paseos containing BBQ areas and tables/chairs.

Methodology

Literature Review

The first step in determining if a project is consistent with the above listed sections of the MSHCP is to conduct a literature review and records search for special-status biological resources potentially occurring on or within the vicinity of the project site. Previously recorded occurrences of special-status plant and wildlife species and their proximity to the project were determined through a query of the CDFWs CNDDB Rarefind 5, the California Native Plant Society (CNPS) Electronic Inventory of Rare and Endangered Vascular Plants of California, Calflora Database, compendia of special-status species published by CDFW, United States Fish and Wildlife Service (USFWS) species listings, and species covered within the MSHCP and associated technical documents.

All available reports, survey results, and literature detailing the biological resources previously observed on or within the vicinity of the project site were reviewed to understand existing site conditions and note the extent of any disturbances that have occurred on the project site that would otherwise limit the distribution of special-status biological resources. Standard field guides and texts were reviewed for specific habitat requirements of special-status and non-special-status biological resources, as well as the following resources:

- Environmental Protection Agency (EPA) Water Program "My Waters" data layers
- Google Earth Pro historic aerial imagery (1985-2022);

- United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS), Soil Survey[2];
- USFWS Critical Habitat designations for Threatened and Endangered Species;
- USFWS National Wetlands Inventory (NWI);
- Stephen's Kangaroo Rat Habitat Conservation Plan;
- Western Riverside County Regional Conservation Authority (RCA) MSHCP Information Map; and
- 2006 Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area.

The literature review provided a baseline from which to inventory the biological resources potentially occurring on the project site. The CNDDB database was used, in conjunction with ArcGIS software, to locate the nearest recorded occurrences of special-status species and determine the distance from the project.

Habitat Assessment/Field Investigation

Following the literature review, biologist Travis J. McGill on inventoried and evaluated the condition of the habitat within the project site on July 29, 2022. An initial field investigation was conducted in March 2020. Plant communities identified on aerial photographs during the literature review were verified by walking meandering transects through the plant communities and along boundaries between plant communities. In addition, aerial photography was reviewed prior to the site investigation to locate potential natural corridors and linkages that may support the movement of wildlife through the area. These areas identified on aerial photography were then walked during the field survey.

All plant and wildlife species observed, as well as dominant plant species within each plant community, were recorded. Plant species observed during the field survey were identified by visual characteristics and morphology in the field. Unusual and less familiar plant species were photographed during the field survey and identified in the laboratory using taxonomical guides. Wildlife detections were made through observation of scat, trails, tracks, burrows, nests, and/or visual and aural observation. In addition, site characteristics such as soil condition, topography, hydrology, anthropogenic disturbances, indicator species, condition of on-site plant communities, and presence of potential jurisdictional drainage and/or wetland features were noted.

Soil Series Assessment

On-site and adjoining soils were researched prior to the field survey using the USDA NRCS Soil Survey for Western Riverside Area, California. In addition, a review of the local geological conditions and historical aerial photographs was conducted to assess the ecological changes that the project site has undergone.

[2] A soil series is defined as a group of soils with similar profiles developed from similar parent materials under comparable climatic and vegetation conditions. These profiles include major horizons with similar thickness, arrangement, and other important characteristics, which may promote favorable conditions for certain biological resources.

Plant Communities

Plant communities were mapped using 7.5-minute USGS topographic base maps and aerial photography. The plant communities were delineated on an aerial photograph, classified in accordance with those described in the MSHCP, and then digitized into GIS Arcview. The Arcview application was used to compute the area of each plant community in acres.

Plants

Common plant species observed during the field survey were identified by visual characteristics and morphology in the field and recorded in a field notebook. Unusual and less-familiar plants were photographed in the field and identified in the laboratory using taxonomic guides. Taxonomic nomenclature used in this study follows the 2012 Jepson Manual (Hickman 2012). In this report, scientific names are provided immediately following common names of plant species (first reference only).

Wildlife

Wildlife species detected during field surveys by sight, calls, tracks, scat, or other sign were recorded during surveys in a field notebook. Field guides were used to assist with identification of wildlife species during the survey included The Sibley Field Guide to the Birds of Western North America (Sibley 2003), A Field Guide to Western Reptiles and Amphibians (Stebbins 2003), and A Field Guide to Mammals of North America (Reid 2006). Although common names of wildlife species are fairly well standardized, scientific names are provided immediately following common names in this report (first reference only).

Jurisdictional Drainages and Wetlands

Aerial photography was reviewed prior to conducting a field investigation in order to locate and inspect any potential natural drainage features, ponded areas, or water bodies that may fall under the jurisdiction of the United States Army Corps of Engineers (Corps), Regional Water Quality Control Board (Regional Board), or CDFW. In general, surface drainage features indicated as blue-line streams on USGS maps that are observed or expected to exhibit evidence of flow are considered potential riparian/riverine habitat and are also subject to state and federal regulatory jurisdiction. In addition, ELMT reviewed jurisdictional waters information through examining historical aerial photographs to gain an understanding of the impact of land-use on natural drainage patterns in the area. The USFWS National Wetland Inventory (NWI) and Environmental Protection Agency (EPA) Water Program "My Waters" data layers were also reviewed to determine whether any hydrologic features and wetland areas have been documented on or within the vicinity of the project site.

Existing Site Condition

The project site is relatively flat with no areas of significant topographic relief at an approximate elevation of 1,457 to 1,469 feet above mean sea level. Based on the NRCS USDA Web Soil Survey, the project site is underlain by the following soil units: Cieneba rocky sandy loam (15 to 50 percent slopes), Exeter sandy loam (2 to 8 percent slopes, eroded), Exeter sandy loam (2 to 8 percent slopes, deep, eroded), Exeter very fine sandy loam (0 to 5 percent slopes, deep), Greenfield sandy loam (0 to 2 percent slopes), and Hanford coarse sandy loam (2 to 8 percent slopes). Refer to Exhibit 4, *Soils*, in Attachment A. Soils on-site have

been mechanically disturbed and heavily compacted from historic land uses (i.e., agricultural activities, grading activities and surrounding development).

The project site is bordered by developments currently under construction to the north and northwest, residential development to the east, and a water detention basin, and a school to the west. Portions of the site have been used as staging areas to support adjacent construction. In association with the adjacent development, an underground storm drain was installed, extending north to the south, through the middle of the project site. The underground storm drain daylights into a constructed earthen trapezoidal channel north of the project site in association with the residential development to the north of the project site.

Vegetation

Due to historic land uses, no native plant communities or natural communities of special concern were observed on or adjacent to the project site. The project site primarily consists of vacant, undeveloped land that has been subject to a variety of anthropogenic disturbances that was historically used for agricultural land uses. The project site no longer is used for agricultural activities but has been subject to on-going weed abatement activities and disturbance associated with surrounding development. These disturbances have eliminated and/or greatly disturbed the natural plant communities that once occurred on and surrounded the project site. Refer to Attachment B, *Site Photographs*, for representative site photographs. No native plant communities will be impacted from implementation of the proposed project.

The project site supports one (1) plant community: non-native grassland, and one land type that would be classified as disturbed (refer to Exhibit 5, *Vegetation* in Attachment A). The non-native grassland plant community is found on both the eastern and western halves of the site where current construction and staging activities are absent. The non-native grassland plant community is dominated by non-native grasses that include mouse barley (*Hordeum murinum*), red brome (*Bromus madritensis*), filaree (*Erodium* sp.), fiddleneck (*Amsinckia menziesii*), and ripgut brome (*Bromus diandrus*). Other common plant species observed in this plant community include bicolor lupine (*Lupinus bicolor*), cheeseweed (*Malva parviflora*), alfalfa (*Medicago sativa*), slender goldfields (*Lasthenia gracilis*), London rocket (*Sisybrium irio*), sweet clover (*Melilotus officinalis*), stinknet (*Oncosiphon piluliferum*), telegraph weed (*Heterotheca grandiflora*), and tidytips (*Layia platyglossa*).

Areas within the project site that are classified as disturbed include those that currently support ongoing construction and staging activities associated with adjacent development. These areas are entirely devoid of vegetation or support minimal weedy/early successional species like short-podded mustard and filaree.

Wildlife

Plant communities provide foraging habitat, nesting/denning sites, and shelter from adverse weather or predation. This section provides a discussion of those wildlife species that were observed or are expected to occur within the project site. The discussion is to be used a general reference and is limited by the season, time of day, and weather conditions in which the field survey was conducted. Wildlife detections were based on calls, songs, scat, tracks, burrows, and direct observation.

Fish

The MSHCP does not identify any covered or special-status fish species as potentially occurring within the project site. No fish or hydrogeomorphic features (e.g., perennial creeks, ponds, lakes, reservoirs) that would provide suitable habitat for fish were observed on or within the vicinity of the project site. Therefore, no fish are expected to occur and are presumed absent.

Amphibians

The MSHCP does not identify any covered or special-status amphibian species as potentially occurring within the project site. No amphibians or hydrogeomorphic features (e.g., perennial creeks, ponds, lakes, reservoirs) that would provide suitable habitat for amphibian species were observed on or within the vicinity of the project site. Therefore, no amphibians are expected to occur.

Reptiles

The MSHCP does not identify any covered or special-status reptilian species as potentially occurring within the project site. The project site provides a limited amount of habitat for a few reptile species adapted to a high degree of human disturbance associated with the on-site weed abatement activities and development. Common side-blotched lizard (*Uta stansburiana elegans*) was the only reptilian species observed during the field investigation. Other common reptilian species expected to occur include gopher snake (*Pituophis catenifer*), and southern alligator lizard (*Elgaria multicarinata*). Due to the high level of anthropogenic disturbances on-site, and surrounding development, no special-status reptilian species are expected to occur within project site.

Birds

The project site provides minimal foraging habitat for bird species adapted to a high degree of human disturbance. Bird species detected during the field survey included northern mockingbird (*Mimus polyglottos*), mourning dove (*Zenaida macroura*), house finch (*Haemorhouse mexicanus*), American crow (*Corcus brachyrhynchos*), red-tailed hawk (*Buteo jamaicensis*), Anna's hummingbird (*Calypte anna*), bushtit (*Psaltriparus minimus*), and lesser goldfinch (*Spinus psaltria*).

Mammals

The MSHCP does not identify any covered or special-status mammalian species as potentially occurring within the project site. No mammalian species were observed during the field investigation. Common mammalian species expected to occur include Audubon's cottontail (*Sylvilagus audubonii*), coyote (*Canis latrans*), opossum (*Didelphis virginiana*), California ground squirrel (*Otospermophilus beecheyi*) and raccoon (*Procyon lotor*). No bat species are expected to occur due to a lack of suitable roosting habitat (i.e., trees, crevices).

Nesting Birds and Raptors

No active nests or birds displaying nesting behavior were observed during the field survey, which was conducted during breeding season. Although subjected to routine disturbance, the ornamental vegetation found off-site along site boundaries has the potential to provide suitable nesting habitat for year-round and seasonal avian residents, as well as migrating songbirds that could occur in the area that area adapted to urban environments. Additionally, the disturbed portions of the site have to potential to support ground-

nesting birds such as killdeer. No raptors are expected to nest on-site due to lack of suitable nesting opportunities.

Nesting birds are protected pursuant to the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code (Sections 3503, 3503.5, 3511, and 3513 prohibit the take, possession, or destruction of birds, their nests or eggs). If construction occurs between February 1st and August 31st, a pre-construction clearance survey for nesting birds should be conducted within three (3) days of the start of any vegetation removal or ground disturbing activities to ensure that no nesting birds will be disturbed during construction.

Migratory Corridors and Linkages

Habitat linkages provide connections between larger habitat areas that are separated by development. Wildlife corridors are similar to linkages but provide specific opportunities for animals to disperse or migrate between areas. A corridor can be defined as a linear landscape feature of sufficient width to allow animal movement between two comparatively undisturbed habitat fragments. Adequate cover is essential for a corridor to function as a wildlife movement area. It is possible for a habitat corridor to be adequate for one species yet still inadequate for others. Wildlife corridors are features that allow for the dispersal, seasonal migration, breeding, and foraging of a variety of wildlife species. Additionally, open space can provide a buffer against both human disturbance and natural fluctuations in resources.

The project site has not been identified as occurring in a wildlife corridor or linkage. The proposed project will be confined to existing areas that have been heavily disturbed or developed, are isolated from regional wildlife corridors and linkages, and there are no riparian corridors, creeks, or useful patches of stepping stone habitat (natural areas) within or connecting the improvement areas to a recognized wildlife corridor or linkage. As such, implementation of the proposed project is not expected to impact wildlife movement opportunities. Therefore, impacts to wildlife corridors or linkages are not expected to occur.

Jurisdictional Areas

There are three key agencies that regulate activities within inland streams, wetlands, and riparian areas in California. The Corps Regulatory Branch regulates discharge of dredge or fill materials into "waters of the United States" pursuant to Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act. Of the State agencies, the CDFW regulates alterations to streambed and bank under Fish and Wildlife Code Sections 1600 et seq., and the Regional Board regulates discharges into surface waters pursuant to Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act.

No jurisdictional drainage and/or wetland features were observed on the project site during the field investigation. Further no blueline streams have been recorded on the project site. Therefore, development of the project will not result in impacts to Corps, Regional Board, or CDFW jurisdiction and regulatory approvals will not be required.

It should be noted that in association with the adjacent development, an underground storm drain was installed, extending north to the south, through the middle of the project site. The underground storm drain daylights into a constructed earthen trapezoidal channel north of the project site in association with the residential development to the north of the project site. Since this underground storm drain and trapezoidal channel were constructed wholly in the uplands as part of the residential developments to convey storm

flows, and do not have a connection to downstream waters, they will fall under the regulatory authority of the Corps, Regional Board or CDFW.

Special-Status Biological Resources

The CNDDB was queried for reported locations of special-status plant and wildlife species as well as natural communities of special concern in the Romoland USGS 7.5-minute quadrangle. A search of published records within these quadrangles were conducted using the CNDDB Rarefind 5 online software and the CDFW BIOS database and the CNPS Inventory of Rare and Endangered Plants of California that supplied information regarding the distribution and habitats of vascular plants in the vicinity of the project site. The habitat assessment evaluated the conditions of the habitat(s) within the boundaries of the project site to determine if the existing plant communities, at the time of the survey, have the potential to provide suitable habitat(s) for special-status plant and wildlife species.

The literature search identified seventeen (17) special-status plant species, fifty (50) special-status wildlife species, and two (2) special-status habitats as having potential to occur within the Romoland quadrangle. Special-status plant and wildlife species were evaluated for their potential to occur within the project site based on habitat requirements, availability and quality of suitable habitat, and known distributions. Species determined to have the potential to occur within the general vicinity are presented in *Table C-1: Potentially Occurring Special-Status Biological Resources*, provided in Attachment C. Refer to Table C-1 for a determination regarding the potential occurrence of special-status plant and wildlife species within the project site.

Special-Status Plants

According to the CNDDB and CNPS, seventeen (17) special-status plant species have been recorded in the Romoland quadrangle (refer to Attachment C). The project site consists of vacant, undeveloped land that have been subject to a variety of anthropogenic disturbances from grading/disking activities, historic agricultural uses, and activities associated with surrounding development. These disturbances have resulted in a majority of the project site being dominated by early successional and non-native vegetation, which has reduced, if not eliminated, the ability of the project site to provide suitable habitat for special-status plant species. Although the field investigation was not conducted during the blooming season for the majority of the special-status plant species known to occur in the general vicinity of the project site, based on habitat requirements for specific special-status plant species and the availability and quality of habitats needed by each species, it was determined that the project site does not provide suitable habitat for special-status species know to occur in the area and are presumed absent due to the high level of disturbances the project site has been subject to.

Special-Status Wildlife

According to the CNDDB, fifty (50) special-status wildlife species have been reported in the Romoland quadrangle (refer to Attachment C). No special-status wildlife species were observed on-site during the habitat assessment. Based on habitat requirements for specific species and the availability and quality of on-site habitats, it was determined that the proposed project site has a moderate potential to support Cooper's hawk (*Accipiter cooperii*), and sharp-shinned hawk (*Accipiter striatus*); and a low potential to support great egret (*Ardea alba*), burrowing owl, white-tailed kite (*Elanus leucurus*), and California horned

lark (*Eremophila alpestris actia*). Further it was determined that the project site does not provide suitable habitat for any of the other special-status wildlife species known to occur in the area since the project site has been heavily disturbed from on-site disturbances and surrounding development.

To ensure no impacts to the aforementioned species do not occur from implementation of the proposed project, a pre-construction nesting bird clearance survey shall be conducted prior to ground disturbance. With implementation of the pre-construction nesting bird clearance survey, impacts to the aforementioned species will be less than significant and no mitigation will be required.

Special-Status Plant Communities

The CNDDB lists two (2) special-status habitats as being identified within the Romoland quadrangle: Southern Coast Live Oak Riparian Forest and Southern Cottonwood Willow Riparian Forest. No CDFW special-status plant communities occur within the boundaries of the project site.

Critical Habitat

Under the federal Endangered Species Act, "Critical Habitat" is designated at the time of listing of a species or within one year of listing. Critical Habitat refers to specific areas within the geographical range of a species at the time it is listed that include the physical or biological features that are essential to the survival and eventual recovery of that species. Maintenance of these physical and biological features requires special management considerations or protection, regardless of whether individuals or the species are present or not. All federal agencies are required to consult with the United States Fish and Wildlife Service (USFWS) regarding activities they authorize, fund, or permit which may affect a federally listed species or its designated Critical Habitat. The purpose of the consultation is to ensure that projects will not jeopardize the continued existence of the listed species or adversely modify or destroy its designated Critical Habitat. The designation of Critical Habitat does not affect private landowners, unless a project they are proposing is on federal lands, uses federal funds, or requires federal authorization or permits (e.g., funding from the Federal Highways Administration or a CWA Permit from the Corps). If a there is a federal nexus, then the federal agency that is responsible for providing the funding or permit would consult with the USFWS.

The project site is not located with federally designated Critical Habitat (refer to Exhibit 6, *Critical Habitat*, in Attachment A). The closest designated Critical Habitat is located approximately 3.6 miles northwest of the project site for spreading navarretia (*Navarretia fossalis*) and thread-leaved brodiaea (*Brodiaea filifolia*) along the San Jacinto River, and approximalty 4.10 miles southeast of the project site for coastal California gnatcatcher (*Polioptila californica californica*). Therefore, the loss or adverse modification of Critical Habitat will not occur as a result of the proposed project and consultation with the USFWS will not be required for implementation of the proposed project.

Western Riverside County MSHCP

The project site is located within the Sun City/Menifee Valley Area Plan of the MSHCP but are not located within any Criteria Cells or MSHCP Conservation Areas (refer to Exhibit 7, *MSHCP Criteria Area*, in Attachment A). Additionally, the project is only located within the designated survey area for burrowing owl as depicted in Figures 6-4 within Section 6.3.2 of the MSHCP.

- Amphibian — Not in an amphibian survey area
- Burrowing Owls — Burrowing Owl Survey Area
- Criteria Area Species — Not in a criteria area species survey area
- Mammals — Not in a mammal survey area
- Narrow Endemic Plants — Not in a narrow endemic plant survey area

The City of Menifee is a permittee under the MSHCP and, while the project is not specifically identified as a Covered Activity in the MSHCP, under Section 7.3.1, *Public and Private Development Consistent with MSHCP Criteria*, public and private development within the Criteria Area that is determined to be consistent with the Criteria is considered a Covered Activity. As such, to achieve coverage, the project must be consistent with the following policies of the MSHCP:

Since the City is a permittee under the MSHCP and, while the project is not specifically identified as a Covered Activity under Section 7.1 of the MSHCP, public and private development that are outside of Criteria Areas and Public/Quasi-Public (PQP) Lands are permitted under the MSHCP, subject to consistency with MSHCP policies that apply to area outside of Criteria Areas. As such, to achieve coverage, the project must be consistent with the following policies of the MSHCP:

- The policies for the protection of species associated with Riparian/Riverine areas and vernal pools as set forth in Section 6.1.2 of the MSHCP;
- The policies for the protection of Narrow Endemic Plant Species as set forth in Section 6.1.3 of the MSHCP;
- Guidelines pertaining to the Urban/Wildlands Interface intended to address indirect effects associated with locating Development in proximity to the MSHCP Conservation Area as detailed in Section 6.1.4 of the MSHCP;
- The requirements for conducting additional surveys as set forth in Section 6.3.2 of the MSHCP; and
- A Habitat Evaluation Acquisition Negotiation Strategy (HANS) as set forth in Section 6.1.1 of the MSHCP.

Riparian/Riverine Areas and Vernal Pools

Riparian/Riverine Areas

As identified in Section 6.1.2 of the MSHCP, *Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools,* riparian/riverine areas are defined as areas dominated by trees, shrubs, persistent emergent plants, or emergent mosses and lichens which occur close to or are dependent upon nearby freshwater, or areas with freshwater flowing during all or a portion of the year. Conservation of these areas is intended to protect habitat that is essential to a number of listed or special-status water-dependent fish, amphibian, avian, and plant species. If impacts to riparian/riverine habitat cannot be avoided, a Determination of Biologically Equivalent or Superior Preservation (DBESP) must be developed to address the replacement of lost functions of habitats in regards to the listed species. This assessment is independent from considerations given to "waters of the U.S." and "waters of the State" under the CWA and the California Fish and Game Code.

No jurisdictional drainages, riparian/riverine and/or wetland features were observed within the project site during the field investigation. Therefore, development of the proposed project will not result in impacts to riparian/riverine habitats and a DBESP will not be required for the loss of riparian/riverine habitat from development of the proposed project.

Vernal Pools and Fairy Shrimp Habitat

One of the factors for determining the suitability of the habitat for fairy shrimp would be demonstrable evidence of seasonal ponding in an area of topographic depression that is not subject to flowing waters. These astatic pools are typically characterized as vernal pools. More specifically, vernal pools are seasonal wetlands that occur in depression areas without a continual source of water. They have wetland indicators of all 3 parameters (soils, vegetation, and hydrology) during the wetter portion of the growing season but normally lack wetland indicators of hydrology and/or vegetation during the drier portion of the growing season. Obligate hydrophytes and facultative wetlands plant species are normally dominant during the wetter portion of the growing season. The determination that an area exhibits vernal pool characteristics and the definition of the watershed supporting vernal pool hydrology is made on a case-by-case basis. Such determinations should be considered the length of time the areas exhibit upland and wetland characteristics and the manner in which the area fits into the overall ecological system as a wetland. The seasonal hydrology of vernal pools provides for a unique environment, which supports plants and invertebrates specifically adapted to a regime of winter inundation, followed by an extended period when the pool soils are dry.

Vernal pools are seasonally inundated, ponded areas that only form in regions where specialized soil and climatic conditions exist. During fall and winter rains typical of Mediterranean climates, water collects in shallow depressions where downward percolation of water is prevented by the presence of a hard pan or clay pan layer (duripan) below the soil surface. Later in the spring when rains decrease and the weather warms, the water evaporates and the pools generally disappear by May. The shallow depressions remain relatively dry until late fall and early winter with the advent of greater precipitation and cooler temperatures. Vernal pools provide unusual "flood and drought" habitat conditions to which certain plant and wildlife species have specifically adapted as well as invertebrate species such as fairy shrimp.

The MSHCP lists two general classes of soils known to be associated with listed and special-status plant species; clay soils and Traver-Domino Willow association soils. The specific clay soils known to be associated with listed and special-status species within the MSHCP plan area include Bosanko, Auld, Altamont, and Porterville series soils, whereas Traver-Domino Willows association includes saline-alkali soils largely located along floodplain areas of the San Jacinto River and Salt Creek. Without the appropriate soils to create the impermeable restrictive layer, none of the special-status plant or wildlife species associated with vernal pools can occur on the project site. None of these soils have been documented within the project site.

A review of recent and historic aerial photographs (1985-2022) of the project site did not provide visual evidence of an astatic or vernal pool conditions within the project site. No ponding was observed, further supporting the fact that the drainage patterns currently occurring on the project site do not follow hydrologic regime needed for vernal pools. From this review of historic aerial photographs and observations during

the field investigations, it can be concluded that there is no indication of vernal pools or suitable fairy shrimp habitat occurring within the proposed project site.

Fairy Shrimp Habitat

Riverside fairy shrimp (*Streptocephalus woottoni*)

Riverside fairy shrimp are restricted to deep seasonal vernal pools, vernal pool like ephemeral ponds, and stock ponds and other human modified depressions The prefer warm-water pools that have low to moderate dissolved solids, are less predictable, and remained filled for extended periods of time. Basins that support Riverside fairy shrimp are typically dry a portion of the year, but usually are filled by late fall, winter or spring rains, and may persist through May. Know habitat occur within annual grasslands, which may be interspersed through chaparral or coastal sage scrub vegetation. In Riverside County, Riverside fairy shrimp have been found in pools formed over the following soils: Murrieta stony clay loams, Las Posas series, Wyman clay loam, and Willows soils.

The project site is underlain by Cieneba rocky sandy loam, Exeter sandy loam, Exeter very fine sandy loam, Greenfield sandy loam, and Hanford coarse sandy loam. The aforementioned soils that Riverside fairy shrimp are typically associated with in Riverside County do not occur onsite. Soils on-site have been mechanically disturbed and heavily compacted from historic land uses (i.e., historic agricultural activities and surrounding development). Due to the lack of soils associated with Riverside fairy shrimp, onsite anthropogenic disturbances, and no indicators of water ponding or astatic water conditions, the site was determined not to provide suitable habitat for Riverside fairy shrimp.

Santa Rosa Plateau fairy shrimp (*Linderiella santarosae*)

Santa Rosa Plateau fairy shrimp are restricted to seasonal southern basalt flow vernal pools with cool clear to milky waters that are moderately predictable and remain filled for extended periods of time and are known only from vernal pool on the Santa Rosa Plateau. Since the project site is not located within the known area where Santa Rosa Plateau fairy shrimp have been documented, and no indicators of water ponding or astatic water conditions, the site was determined not to provide suitable habitat for Santa Rosa Plateau fairy shrimp.

Vernal pool fairy shrimp (*Branchinecta lynchi*)

Vernal pool fairy shrimp are restricted to seasonal vernal pools (vernal pools and alkali vernal pools) and prefer cool-water pools that have low to moderate dissolved solids, are unpredictable, and often short lived. The vernal pool fairy shrimp is known from four locations in Western Riverside County MSHCP Plan Area: Skunk Hollow, the Santa Rosa Plateau, Salt Creek, and the vicinity of the Pechanga Indian Reservation. Since the project site is not located within or adjacent to the four know populations, and no indicators of water ponding or astatic water conditions, the site was determined not to provide suitable habitat for vernal pool fairy shrimp.

Narrow Endemic Plant Species

Section 6.1.3 of the MSHCP, *Protection of Narrow Endemic Plant Species*, states that the MSHCP database does not provide sufficient detail to determine the extent of the presence/distribution of Narrow Endemic

Plant Species within the MSHCP Plan Area. Additional surveys may be needed to gather information to determine the presence/absence of these species to ensure that appropriate conservation of these species occurs. Based on the RCA MSHCP Information Map query and review of the MSHCP, it was determined that the project site is not located within the designated survey area for Narrow Endemic Plant Species. Through the field investigation, it was determined that the project site does not provide suitable habitat for any of the Narrow Endemic Plant Species listed under Section 6.1.3 of the MSHCP, and, therefore, the project is consistent with Section 6.1.3 of the MSHCP. No additional surveys or analysis is required.

Additional Survey Needs and Procedures

In accordance with Section 6.3.2 of the MSHCP, *Additional Survey Needs and Procedures*, additional surveys may be needed for certain species in order to achieve coverage for these species. The query of the RCA MSHCP Information Map and review of the MSHCP determined that the project site is located within the designated survey area for burrowing owl as depicted in Figure 6-4 within Section 6.3.2 of the MSHCP. No other special-status wildlife species surveys were identified.

Burrowing Owl

Burrowing owl is currently designated as a California Species of Special Concern. The burrowing owl is a grassland specialist distributed throughout western North America where it occupies open areas with short vegetation and bare ground within shrub, desert, and grassland environments. Burrowing owls use a wide variety of arid and semi-arid environments with level to gently-sloping areas characterized by open vegetation and bare ground. The western burrowing owl (*A.c. hypugaea*), which occurs throughout the western United States including California, rarely digs its own burrows and is instead dependent upon the presence of burrowing mammals (i.e., California ground squirrels, coyotes, and badgers) whose burrows are often used for roosting and nesting. The presence or absence of colonial mammal burrows is often a major factor that limits the presence or absence of burrowing owls. Where mammal burrows are scarce, burrowing owls have been found occupying man-made cavities, such as buried and non-functioning drain pipes, stand-pipes, and dry culverts. They also require low growth or open vegetation allowing line-of-sight observation of the surrounding habitat to forage and watch for predators. In California, the burrowing owl breeding season extends from the beginning of February through the end of August.

Under the MSHCP burrowing owl is considered an adequately conserved covered species that may still require focused surveys in certain areas as designated in Figure 6-4 of the MSHCP. The project site occurs within the MSHCP burrowing owl survey area and a habitat assessment was conducted for the species to ensure compliance with MSHCP guidelines for the species. In accordance with the MSHCP Burrowing Owl Survey Instructions (2006), survey protocol consists of two steps, Step I – Habitat Assessment and Step II – Locating Burrows and Burrowing Owls. The following section describes the methodology followed during the burrowing owl habitat assessment conducted for this project.

- Step I – Habitat Assessment: Step 1 of the MSHCP habitat assessment for burrowing owl consists of a walking survey to determine if suitable habitat is present onsite. The habitat assessment was conducted on July 29, 2022. Upon arrival at the project site, and prior to initiating the assessment survey, binoculars were used to scan all suitable habitats on and adjacent to the property, including perch locations, to establish owl presence.

All suitable areas of the project site were surveyed on foot by walking slowly and methodically while recording/mapping areas that may represent suitable owl habitat onsite. Primary indicators of suitable burrowing owl habitat in western Riverside County include, but are not limited to, native and non-native grassland, interstitial grassland within shrub lands, shrub lands with low density shrub cover, golf courses, drainage ditches, earthen berms, unpaved airfields, pastureland, dairies, fallow fields, and agricultural use areas. Burrowing owls typically use burrows made by fossorial mammals, but they often utilize man-made structures, such as earthen berms, cement culverts, cement, asphalt, rock, wood debris piles, openings beneath cement or asphalt pavement. Burrowing owls are often found within, under, or in close proximity to man-made structures.

According to the MSHCP guidelines, if suitable habitat is present, the biologist should also walk the perimeter of the property, which consists of a 150-meter (approximately 500 feet) buffer zone around the project site boundary. If permission to access the buffer area cannot be obtained, the biologist shall not trespass, but visually inspect adjacent habitats with binoculars. In addition to surveying the entire Project Site all bordering natural habitats located immediately adjacent to the Project Site were assessed. Results from the habitat assessment indicate that suitable resources for burrowing owl are present throughout the Project Site. Accordingly, if suitable habitat is documented onsite or within adjacent habitats, both Step II, focused surveys and the 30-day preconstruction surveys are required in order to comply with the MSHCP guidelines.

- Step II – Locating Burrows and Burrowing Owls: Concurrent with the initial habitat assessment, a detailed focused burrow survey was conducted and included documentation of appropriately sized natural burrows or suitable man-made structures that may be utilized by burrowing owl - as part of the MSHCP protocol, which is described below under Part A, Focused Burrow Survey. The MSHCP protocol indicates that no more than 100 acres should be surveyed per day/per biologist.

    - Part A – Focused Burrow Survey: A systematic survey for burrows, including burrowing owl sign, was conducted by walking across all suitable habitats mapped within the project site on July 29, 2022. Pedestrian survey transects were spaced to allow 100% visual coverage of the ground surface. The distances between transect centerlines were no more than 30 meters (approximately 100 feet) apart, and owing to the terrain, often much smaller. Transect routes were also adjusted to account for topography and in general ground surface visibility (refer to Exhibit 8, *Survey Transects*, in Attachment A). Areas providing potential habitat for burrowing owls were surveyed for suitable burrows, consisting of natural and non-natural substrates in areas with low, open vegetation. All burrows encountered were examined for shape, scat, pellets, white-wash, feathers, tracks, and prey remains. Suitable burrows/sites, including rock piles and non-natural substrates, were thoroughly examined for signs of presence.

Despite a systematic search of the project site, no burrowing owls or sign (i.e., pellets, feathers, castings, or whitewash) were observed during the field investigation. The majority of the project site is unvegetated, which allows for minimal line-of-sight observation favored by burrowing owls, and several small mammal burrows that have the potential to provide suitable burrowing owl nesting habitat (>4 inches in diameter) were observed within the boundaries of the site. However, the site is surrounded by tall trees and poles that

provide perching opportunities for large raptors (i.e., red-tailed hawk) that can prey on burrowing owls. Based on this information, and as a result of current and historic on-site disturbances, and surrounding development, it was determined that burrowing owls do not have potential to occur on-site and no focused surveys are recommended. Being that no appropriate burrows or burrowing owl habitat was found, Part B-Focused Burrowing Owl surveys were not required. Therefore, the project is consistent with Section 6.3.2. However, out of an abundance of caution a pre-construction burrowing owl clearance survey shall be conducted prior to ground disturbing activities.

Urban/Wildlands Interface Guidelines

Section 6.1.4 of the MSHCP, *Guidelines Pertaining to Urban/Wildlands Interface,* is intended to address indirect effects associated with development in proximity to MSHCP Conservation Areas. The Urban/Wildlife Interface Guidelines are intended to ensure that indirect project-related impacts to the MSHCP Conservation Area, including drainage, toxics, lighting, noise, invasive plant species, barriers, and grading/land development, are avoided or minimized. The project site is not located within or immediately adjacent to any Criteria Cells, corridors, or linkages. The urban/Wildlands Interface Guidelines do not apply to this project, and, therefore, the project is consistent with Section 6.1.4 of the MSHCP.

Stephen's Kangaroo Rat Habitat Conservation Plan

Separate from the consistency review against the policies of the MSHCP, Riverside County established a boundary in 1996 for protecting the Stephens' kangaroo rat (*Dipodomys stephensi*), a federally endangered and state threatened species. The Stephens' kangaroo rat is protected under the Stephens' Kangaroo Rat Habitat Conservation Plan (County Ordinance No. 663.10; SKR HCP). As described in the MSHCP Implementation Agreement, a Section 10(a) Permit, and California Fish and Game Code Section 2081 Management Authorization were issued to the Riverside County Habitat Conservation Agency (RCHCA) for the Long-Term SKR HCP and was approved by the USFWS and CDFW in August 1990 (RCHCA 1996). Relevant terms of the SKR HCP have been incorporated into the MSHCP and its Implementation Agreement. The SKR HCP will continue to be implemented as a separate HCP; however, to provide the greatest conservation for the largest number of Covered Species, the Core Reserves established by the SKR HCP are managed as part of the MSHCP Conservation Area consistent with the SKR HCP. Actions shall not be taken as part of the implementation of the SKR HCP that will significantly affect other Covered Species. Take of Stephens' kangaroo rat outside of the boundaries but within the MSHCP area is authorized under the MSHCP and the associated permits.

The project site is located within the Mitigation Fee Area of the SKR HCP. Therefore, the applicant will be required to pay the SKR HCP Mitigation Fee prior to development of the project site.

Conclusion

Based on the literature review and field survey, implementation of the project will have no significant impacts on federally, State, or MSHCP listed species known to occur in the general vicinity of the project site. Additionally, the project will have no effect on designated Critical Habitat because none exists within the area. No jurisdictional drainage and/or wetland features were observed on the project site during the field investigation. Additionally, the project site is not located within or adjacent to any criteria cell, and no riparian/riverine resources or vernal pools were found onsite. No further surveys are recommended.

With completion of the recommendations provided below and payment of the SKR HCP mitigation fee and MSHCP mitigation fee, development of the project site is fully consistent with the Western Riverside County MSHCP.

Recommendations

Migratory Bird Treaty Act and Fish and Game Code Compliance

Vegetation within and surrounding the project site has the potential to provide refuge cover from predators, perching sites and favorable conditions for avian nesting that could be impacted by construction activities associated with the project. Nesting birds are protected pursuant to the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code (Sections 3503, 3503.3, 3511, and 3513 of the California Fish and Game Code prohibit the take, possession, or destruction of birds, their nests or eggs). In order to protect migratory bird species, a nesting bird clearance survey should be conducted prior to any ground disturbance or vegetation removal activities that may disrupt the birds during the nesting season. Consequently, if avian nesting behaviors are disrupted, such as nest abandonment and/or loss of reproductive effort, it is considered "take" and is potentially punishable by fines and/or imprisonment.

If construction occurs between February 1st and August 31st, a pre-construction clearance survey for nesting birds should be conducted within three (3) days of the start of any vegetation removal or ground disturbing activities to ensure that no nesting birds will be disturbed during construction. The biologist conducting the clearance survey should document a negative survey with a brief letter report indicating that no impacts to active avian nests will occur. If an active avian nest is discovered during the pre-construction clearance survey, construction activities should stay outside of a no-disturbance buffer. The size of the no-disturbance buffer will be determined by the wildlife biologist and will depend on the level of noise and/or surrounding anthropogenic disturbances, line of sight between the nest and the construction activity, type and duration of construction activity, ambient noise, species habituation, and topographical barriers. These factors will be evaluated on a case-by-case basis when developing buffer distances. Limits of construction to avoid an active nest will be established in the field with flagging, fencing, or other appropriate barriers; and construction personnel will be instructed on the sensitivity of nest areas. A biological monitor should be present to delineate the boundaries of the buffer area and to monitor the active nest to ensure that nesting behavior is not adversely affected by the construction activity. Once the young have fledged and left the nest, or the nest otherwise becomes inactive under natural conditions, construction activities within the buffer area can occur.

Burrowing Owl Pre-Construction Clearance Survey

A 30-day pre-construction burrowing owl survey shall be conducted prior to any ground disturbing activities to avoid direct take of burrowing owls, in accordance Objectives 6 of the Species Account for the Burrowing Owl included in the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP).

Please do not hesitate to contact Tom McGill at (951) 285-6014 or tmcgill@elmtconsulting.com or Travis McGill at (909) 816-1646 or travismcgill@elmtconsulting.com should you have any questions.

Sincerely,

Thomas J. McGill, Ph.D.
Managing Director

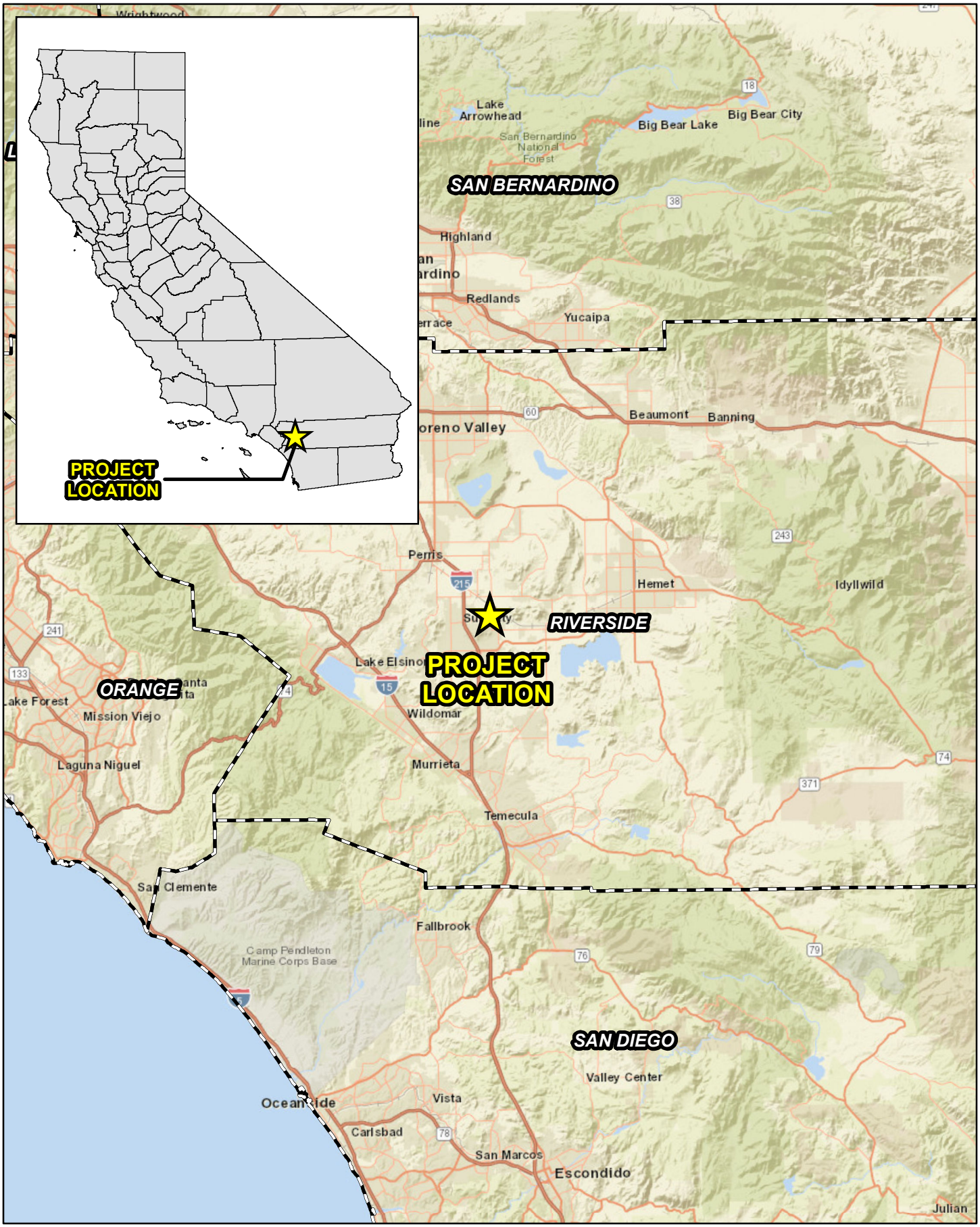
Travis J. McGill
Director

Attachments:

A. *Project Exhibits*
B. *Site Photographs*
C. *Potentially Occurring Special-Status Biological Resources*
D. *Regulations*

Attachment A

Project Exhibits



HABITAT ASSESSMENT AND MSHCP CONSISTENCY ANALYSIS
VILLAGE AT JUNIPERO

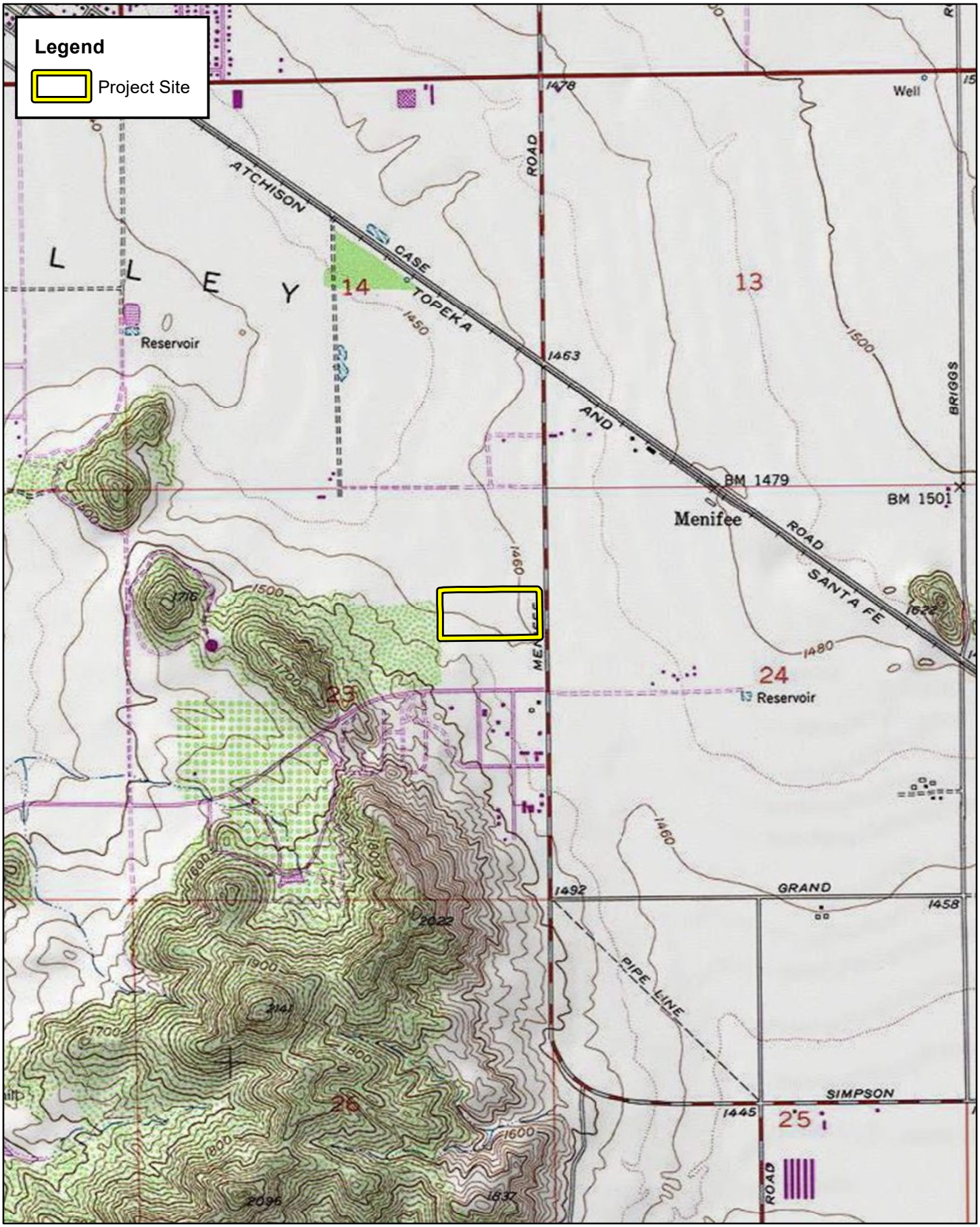
Regional Vicinity

ELMT CONSULTING

0 2.5 5 10 Miles

Source: World Street Map, Riverside County

Exhibit 1



HABITAT ASSESSMENT AND MSHCP CONSISTENCY ANALYSIS
VILLAGE AT JUNIPERO

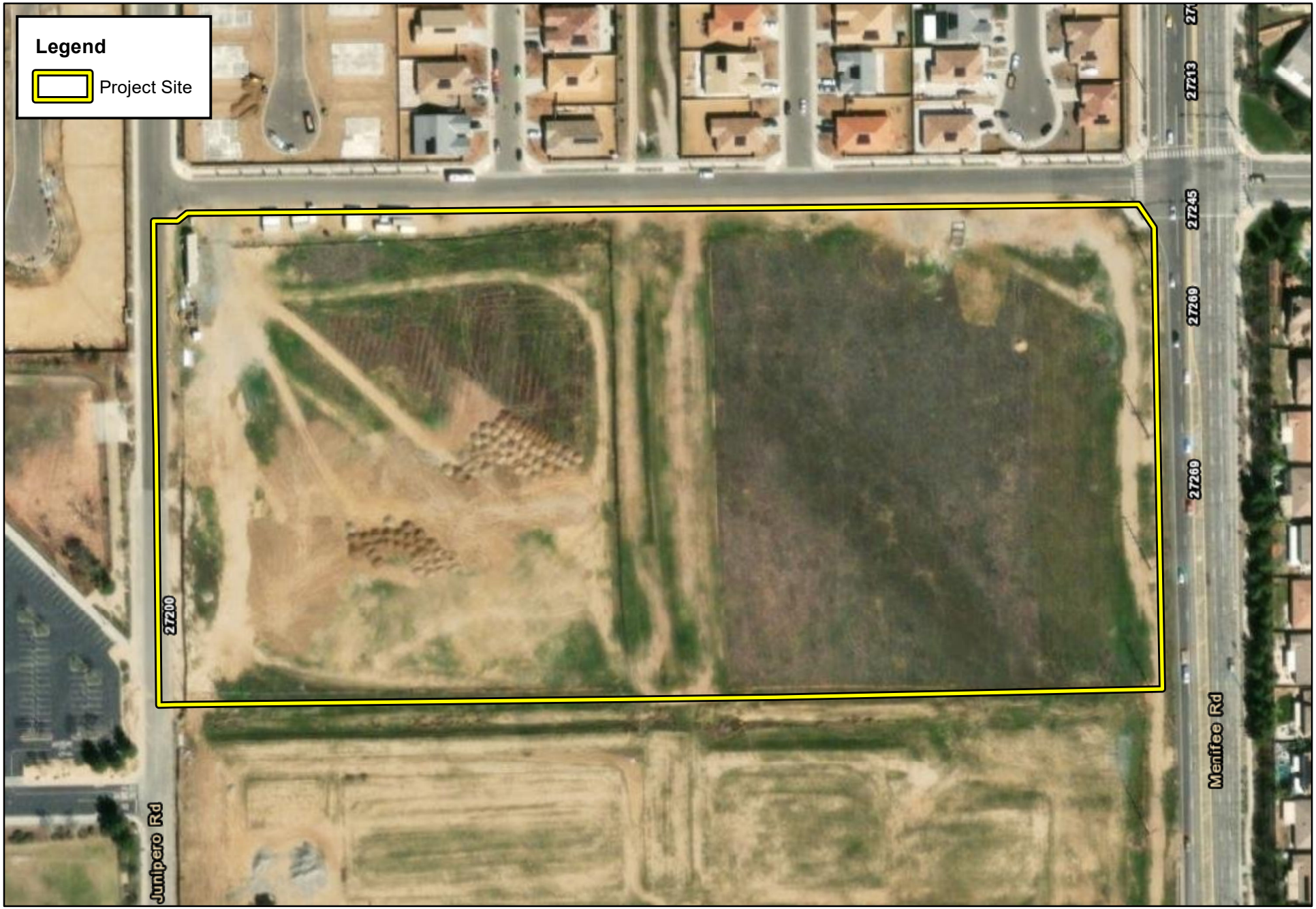
ELMT CONSULTING

0 1,000 2,000 4,000 Feet

Source: USA Topographic Map, Riverside County

Site Vicinity

Exhibit 2



HABITAT ASSESSMENT AND MSHCP CONSISTENCY ANALYSIS
VILLAGE AT JUNIPERO

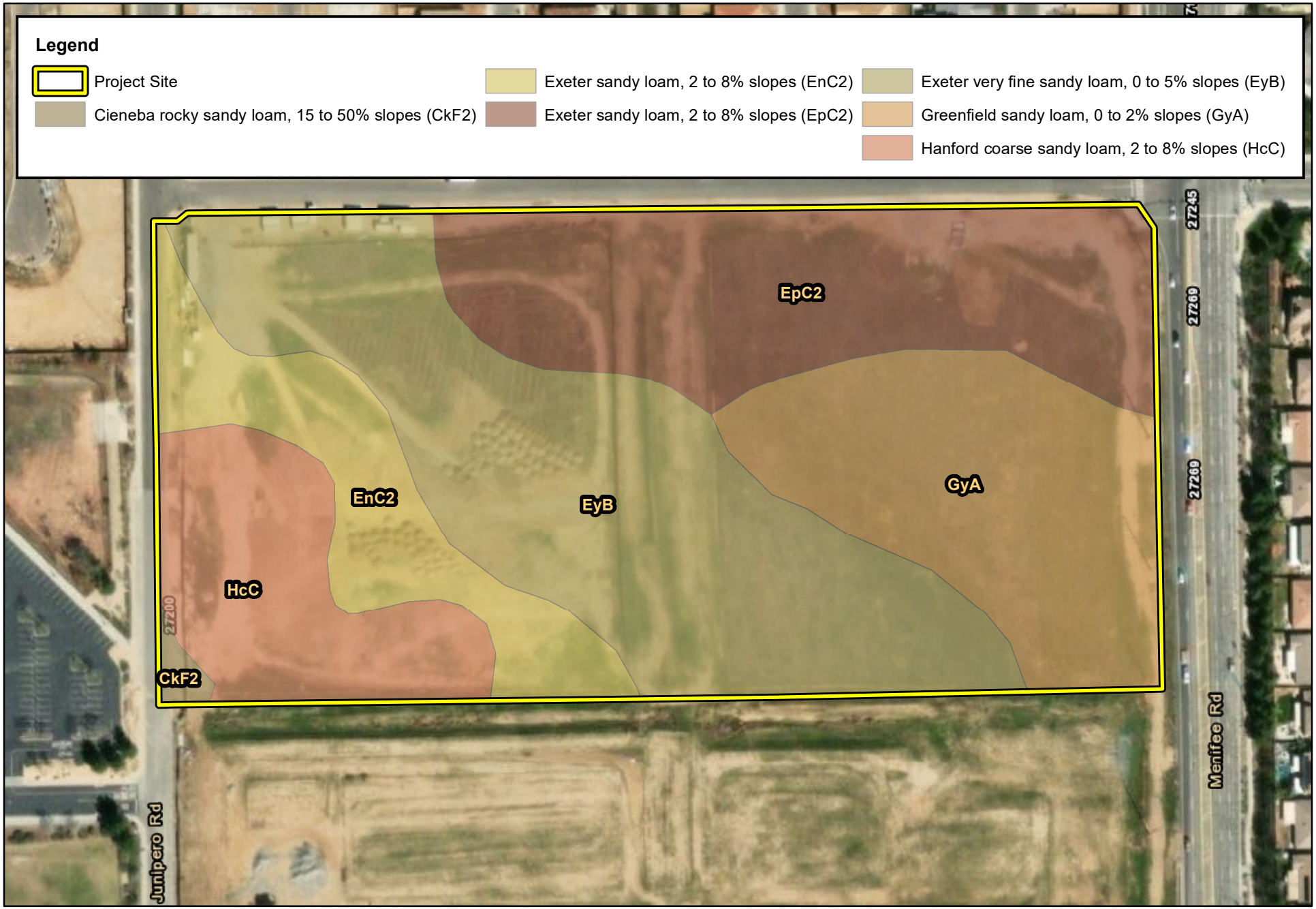
Project Site

ELMT CONSULTING

0 62.5 125 250 Feet

Source: ESRI Aerial Imagery, Riverside County

Exhibit 3



HABITAT ASSESSMENT AND MSHCP CONSISTENCY ANALYSIS
VILLAGE AT JUNIPERO

Soils

ELMT CONSULTING

0 62.5 125 250 Feet

Source: ESRI Aerial Imagery, Soil Survey Geographic Database, Riverside County

Exhibit 4



HABITAT ASSESSMENT AND MSHCP CONSISTENCY ANALYSIS
VILLAGE AT JUNIPERO

Vegetation

ELMT CONSULTING

0 62.5 125 250 Feet

Source: ESRI Aerial Imagery, Riverside County

Exhibit 5



HABITAT ASSESSMENT AND MSHCP CONSISTENCY ANALYSIS
SOUTH OF GOYA

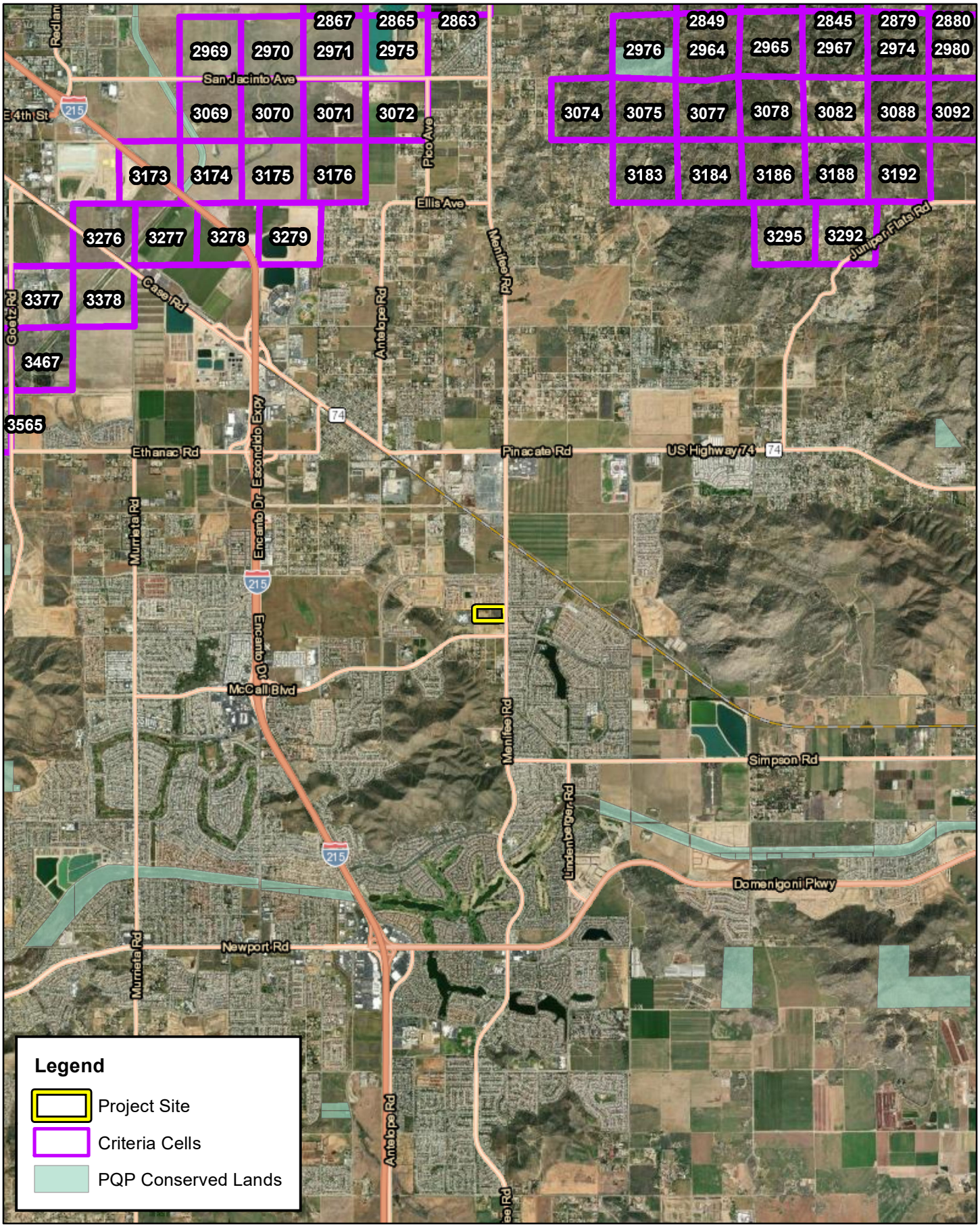
ELMT CONSULTING

0 1 2 4 Miles

Source: ESRI Aerial Imagery, USFWS Critical Habitat, Riverside County

Critical Habitat

Exhibit 6



HABITAT ASSESSMENT AND MSHCP CONSISTENCY ANALYSIS
VILLAGE AT JUNIPERO

MSHCP Criteria Area

ELMT CONSULTING

0 1 2 4 Miles

Source: ESRI Aerial Imagery, Riverside County

Exhibit 7

Attachment B

Site Photographs



Photograph 1: From the northwest corner of the project site looking east along the northern boundary.



Photograph 2: From the southwest corner of the project site looking north along the western boundary.



Photograph 3: From the southwest corner of the project site looking west along the southern boundary.



Photograph 4: From the middle of the southern boundary looking east.



Photograph 5: From the southeast corner of the project site looking west along the southern boundary.



Photograph 6: From the southeast corner of the project site looking north along the eastern boundary.



Photograph 7: From the northwest corner of the project site looking south along the eastern boundary.



Photograph 8: From the northwest corner of the project site looking west along the northern boundary.



Photograph 9: From the middle of the southern boundary of the project site looking north along the middle of the site.



Photograph 10: Soil stockpiles on the southwest corner of the site.

Attachment C

Potentially Occurring Special-Status Biological Resources

Table C-1: Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	**Status**	**Habitat**	**Observed On-site**	**Potential to Occur**
SPECIAL-STATUS WILDLIFE SPECIES				
Accipiter cooperii Cooper's hawk	Fed: None CA: WL	Generally found in forested areas up to 3,000 feet in elevation, especially near edges and rivers. Prefers hardwood stands and mature forests, but can be found in urban and suburban areas where there are tall trees for nesting. Common in open areas during nesting season.	No	**Moderate**. The project site provides suitable foraging opportunities, but the project site does not provide suitable nesting opportunities. This species is adapted to urban environments and occurs commonly.
Accipiter striatus sharp-shinned hawk	Fed: None CA: WL	Found in pine, fir and aspen forests. They can be found hunting in forest interior and edges from sea level to near alpine areas. Can also be found in rural, suburban and agricultural areas, where they often hunt at bird feeders. Typically found in southern California in the winter months.	No	**Moderate**. The project site provides suitable foraging opportunities. This species does not nest in this region.
Aimophila ruficeps canescens southern California rufous-crowned sparrow	Fed: None CA: WL	Typically found between 3,000 and 6,000 feet in elevation. Breed in sparsely vegetated scrubland on hillsides and canyons. Prefers coastal sage scrub dominated by California sagebrush (*Artemisia californica*), but they can also be found breeding in coastal bluff scrub, low-growing serpentine chaparral, and along the edges of tall chaparral habitats.	No	**Presumed absent.** No suitable habitat is present on-site.
Ammodramus savannarum grasshopper sparrow	Fed: None CA: SSC	Occurs in grassland, upland meadow, pasture, hayfield, and old field habitats. Optimal habitat contains short- to medium-height bunch grasses interspersed with patches of bare ground, a shallow litter layer, scattered forbs, and few shrubs. May inhabit thickets, weedy lawns, vegetated landfills, fence rows, open fields, or grasslands.	No	**Presumed absent.** No suitable habitat is present on-site.
Aquila chrysaetos golden eagle	Fed: None CA: FP; WL	Occupies nearly all terrestrial habitats of the western states except densely forested areas. Favors secluded cliffs with overhanging ledges and large trees for nesting and cover. Hilly or mountainous country where takeoff and soaring are supported by updrafts is generally preferred to flat habitats. Deeply cut canyons rising to open mountain slopes and crags are ideal habitat.	No	**Presumed absent.** No suitable habitat is present on-site.

Scientific Name Common Name	**Status**	**Habitat**	**Observed On-site**	**Potential to Occur**
Ardea alba great egret	Fed: None CA: None	Yearlong resident throughout California, except for the high mountains and deserts. Feeds and rests in fresh, and saline emergent wetlands, along the margins of estuaries, lakes, and slow-moving streams, on mudflats and salt ponds, and in irrigated croplands and pastures.	No	**Low.** The project site provides suitable foraging opportunities, but does not provide suitable nesting opportunities.
Ardea herodias great blue heron	Fed: None CA: None	Forages along streams, marshes, lakes, and meadows. Nests colonially in tall trees (typically Eucalyptus sp.), on cliffsides, or in isolated spots in marshes.	No	**Presumed absent.** No suitable habitat is present on-site.
Arizona elegans occidentalis California glossy snake	Fed: None CA: SSC	Inhabits arid scrub, rocky washes, grasslands, and chaparral habitats.	No	**Presumed absent.** No suitable habitat is present on-site.
Artemisiospiza belli belli Bell's sparrow	Fed: None CA: WL	Generally prefers semi-open habitats with evenly spaced shrubs 1 – 2 meters in height. Dry chaparral and coastal sage scrub. Less common in tall dense, old chaparral.	No	**Presumed absent.** No suitable habitat is present on-site.
Aspidoscelis hyperythra orangethroat whiptail	Fed: None CA: SSC; WL	Semi-arid brushy areas typically with loose soil and rocks, including washes, streamsides, rocky hillsides, and coastal chaparral.	No	**Presumed absent**. No suitable habitat is present.
Aspidoscelis tigris stejnegeri coastal whiptail	Fed: None CA: SSC	Found in a variety of ecosystems, primarily hot and dry open areas with sparse foliage - chaparral, woodland, and riparian areas.	No	**Presumed absent**. No suitable habitat is present.
Athene cunicularia burrowing owl	Fed: None CA: SSC	Occurs in open, annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Dependent upon fossorial mammals for burrows, most notable ground squirrels.	No	**Low**. The project site provides marginal foraging and nesting habitat. Although heavily disturbed, the western portion of the site provides line-of-sight opportunities favored by burrowing owls; however, no suitable burrows (>4 inches in diameter) were observed on-site.
Baeolophus inornatus oak titmouse	Fed: None CA: None	Lives mostly in warm, open, dry oak or oak-pine woodlands. Restricted to southwest Oregon to northwest Baja California with another population in the Cape District of south Baja California.	No	**Presumed absent.** No suitable habitat is present on-site.
Bombus crotchii Crotch bumble bee	Fed: None CA: CE	Exclusive to coastal California east towards the Sierra-Cascade Crest; less common in western Nevada.	No	**Presumed absent.** No suitable habitat is present on-site.

Scientific Name Common Name	**Status**	**Habitat**	**Observed On-site**	**Potential to Occur**
Buteo regalis ferruginous hawk	Fed: None CA: WL	Occurs primarily in open grasslands and fields, but may be found in sagebrush flats, desert scrub, low foothills, or along the edges of pinyon-juniper woodland. Feeds primarily on small mammals and typically found in agricultural or open fields.	No	**Presumed absent.** No suitable habitat is present on-site.
Buteo swainsoni Swainson's hawk	Fed: None CA: **THR**	Typical habitat is open desert, grassland, or cropland containing scattered, large trees or small groves. Breeds in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah in the Central Valley. Forages in adjacent grassland or suitable grain or alfalfa fields or livestock pastures.	No	**Presumed absent.** No suitable habitat is present on-site.
Calypte costae Costa's hummingbird	Fed: None CA: None	Desert and semi-desert, arid brushy foothills and chaparral. A desert hummingbird that breeds in the Sonoran and Mojave Deserts. Departs desert heat moving into chaparral, scrub, and woodland habitats.	No	**Presumed absent**. No suitable habitat is present on-site.
Chaetodipus californicus femoralis Dulzura pocket mouse	Fed: None CA: SSC	Found most often in grass-chaparral edges but may also be found in coastal scrub or other habitats, primarily in San Diego County.	No	**Presumed absent.** No suitable habitat is present on-site.
Chaetodipus fallax fallax northwestern San Diego pocket mouse	Fed: None CA: SSC	Occurs in desert and coastal habitats in southern California, Mexico, and northern Baja California, from sea level to at least 1,400 meters. Found in a variety of temperate habitats ranging from chaparral and grasslands to scrub forests and deserts. Requires low growing vegetation or rocky outcroppings, as well as sandy soils for burrowing.	No	**Presumed absent.** No suitable habitat is present on-site.
Chaetura vauxi Vaux's swift	Fed:CA: None SSC	Prefers redwood and Douglas-fir habitats with nest-sites in large hallow trees and snags, especially tall, burned-out snags. Fairly common migrant throughout most of the state in April and May, and August and September.	No	**Presumed absent.** No suitable habitat is present on-site.
Circus hudsonius northern harrier	Fed: None CA: SSC	Frequents meadows, grasslands, open rangelands, desert sinks, fresh and saltwater emergent wetlands; seldom found in wooded areas. Mostly found in flat, or hummocky, open areas of tall, dense grasses moist or dry shrubs, and edges for nesting, cover, and feeding.	No	**Presumed absent**. No suitable habitat is present on-site.

Scientific Name Common Name	**Status**	**Habitat**	**Observed On-site**	**Potential to Occur**
Coleonyx variegatus abbotti San Diego banded gecko	Fed: None CA: SSC	Occurs in coastal and cismontane southern California from interior Ventura County south, although it is absent from the extreme outer coast. It is uncommon in coastal scrub and chaparral, most often occurring in granite or rocky outcrops in these habitats.	No	**Presumed absent.** No suitable habitat is present on-site.
Crotalus ruber red-diamond rattlesnake	Fed: None CA: SSC	It can be found from the desert, through dense chaparral in the foothills (it avoids the mountains above around 4,000 feet), to warm inland mesas and valleys, all the way to the cool ocean shore. It is most commonly associated with heavy brush with large rocks or boulders. Dense chaparral in the foothills, cactus or boulder associated coastal sage scrub, oak and pine woodlands, and desert slope scrub associations are known to carry populations of the northern red-diamond rattlesnake; however, chamise and red shank associations may offer better structural habitat for refuges and food resources for this species than other habitats.	No	**Presumed absent.** No suitable habitat is present on-site.
Dipodomys merriami parvus San Bernardino kangaroo rat	Fed: **END** CA: CE	Primarily found in Riversidian alluvial fan sage scrub and sandy loam soils, alluvial fans and flood plains, and along washes with nearby sage scrub. May occur at lower densities in Riversidian upland sage scrub, chaparral and grassland in uplands and tributaries in proximity to Riversidian alluvial fan sage scrub habitats. Tend to avoid rocky substrates and prefer sandy loam substrates for digging of shallow burrows.	No	**Presumed absent.** No suitable habitat is present on-site.
Dipodomys simulans Dulzura kangaroo rat	Fed: None CA: None	Relatively common in chaparral, coastal sage scrub, Riversidean alluvial fan sage scrub, and peninsular juniper woodland habitats.	No	**Presumed absent.** No suitable habitat is present on-site.
Dipodomys stephensi Stephens' kangaroo rat	Fed: **END** CA: **THR**	Occur in arid and semi-arid habitats with some grass or brush. Prefer open habitats with less than 50% protective cover. Require soft, well-drained substrate for building burrows and are typically found in areas with sandy soil.	No	**Presumed absent.** No suitable habitat is present on-site.
Elanus leucurus white-tailed kite	Fed: None CA: FP	Occurs in low elevation, open grasslands, savannah-like habitats, agricultural areas, wetlands, and oak woodlands. Uses trees with dense canopies for cover.	No	**Low**. The project site provides marginal foraging habitat. No suitable nesting opportunities on-site.

Scientific Name Common Name	**Status**	**Habitat**	**Observed On-site**	**Potential to Occur**
Empidonax traillii willow flycatcher	Fed: None CA: **END**	A rare to locally uncommon, summer resident in wet meadow and montane riparian habitats (2,000 to 8,000 ft) in the Sierra Nevada and Cascade Range. Most often occurs in broad, open river valleys or large mountain meadows with lush growth of shrubby willows.	No	**Presumed absent.** No suitable habitat is present on-site.
Eremophila alpestris actia California horned lark	Fed: None CA: WL	Generally found in shortgrass prairies, grasslands, disturbed fields, or similar habitat types along the coast or in deserts. Trees are shrubs are usually scarce or absent. Generally rare in montane, coniferous, or chaparral habitats. Forms large flocks outside of the breeding season.	No	**Low** The project site provides suitable foraging and minimal nesting habitat.
Eumops perotis californicus western mastiff bat	Fed: None CA: SSC	Primarily a cliff-dwelling species, roost generally under exfoliating rock slabs. Roosts are generally high above the ground, usually allowing a clear vertical drop of at least 3 meters below the entrance for flight. In California, it is most frequently encountered in broad open areas. Its foraging habitat includes dry desert washes, flood plains, chaparral, oak woodland, open ponderosa pine forest, grassland, and agricultural areas.	No	**Presumed absent.** No suitable habitat is present on-site.
Euphydryas editha quino Quino checkerspot butterfly	Fed: **END** CA: None	Range is now limited to a few populations in Riverside and San Diego counties. Common in meadows and upland sage scrub/chapparal habitat.	No	**Presumed absent.** No suitable habitat is present on-site.
Falco peregrinus anatum American peregrine falcon	Fed: DL CA: DL; FP	Uncommon winter resident of the inland region of southern California. Active nesting sites are known along the coast north of Santa Barbara, in the Sierra Nevada, and in other mountains of northern California. Breeds mostly in woodland, forest, and coastal habitats. Riparian areas and coastal and inland wetlands are important habitats yearlong, especially in nonbreeding seasons.	No	**Presumed absent.** No suitable habitat is present on-site.
Lanius ludovicianus loggerhead shrike	Fed: None CA: SSC	Often found in broken woodlands, shrublands, and other habitats. Prefers open country with scattered perches for hunting and fairly dense brush for nesting.	No	**Presumed absent.** No suitable habitat is present on-site.
Lasiurus xanthinus western yellow bat	Fed: None CA: SSC	Roosts in palm trees in foothill riparian, desert wash, and palm oasis habitats with access to water for foraging.	No	**Presumed absent.** No suitable habitat is present on-site.
Lepus californicus bennettii San Diego black-tailed jackrabbit	Fed: None CA: SSC	Occurs in diverse habitats, but primarily is found in arid regions supporting shortgrass habitats. Openness of open scrub habitat is preferred over dense chaparral.	No	**Presumed absent.** No suitable habitat is present on-site.

Scientific Name Common Name	**Status**	**Habitat**	**Observed On-site**	**Potential to Occur**
Neotoma lepida intermedia San Diego desert woodrat	Fed: None CA: SSC	Occurs in coastal scrub communities between San Luis Obispo and San Diego Counties. Prefers moderate to dense canopies, and especially rocky outcrops.	No	**Presumed absent.** No suitable habitat is present on-site.
Numenius americanus long-billed curlew	Fed: None CA: WL	Preferred winter habitats include large coastal estuaries, upland herbaceous areas, and croplands. On estuaries, feeding occurs mostly on intertidal mudflats.	No	**Presumed absent.** No suitable habitat is present on-site.
Nycticorax nycticorax black-crowned night heron	Fed: None CA: None	Fairly common, yearlong resident in lowlands and foothills throughout most of California, including the Salton Sea and Colorado River areas, and very common locally in large nesting colonies. Feeds along the margins of lacustrine, large riverine, and fresh and saline emergent habitats and rarely, on kelp beds in marine sub tidal habitats. Nests and roosts in dense-foliaged trees and dense emergent wetlands.	No	**Presumed absent.** No suitable habitat is present on-site.
Onychomys torridus ramona southern grasshopper mouse	Fed: None CA: SSC	Inhabits alkali desert scrub and other desert scrub habitats, and to a lesser extent succulent shrubs, desert washes, desert riparian, coastal scrub, mixed chaparral, and sagebrush habitats. Generally rare in valley foothill and montane riparian habitats. Prefers low to moderate shrub cover and requires friable soils.	No	**Presumed absent.** No suitable habitat is present on-site.
Perognathus longimembris brevinasus Los Angeles pocket mouse	Fed: None CA: SSC	Occurs in lower elevation grasslands and coastal sage scrub communities in and around the Los Angeles Basin. Prefers open ground with fine sandy soils. May not dig extensive burrows, but instead will seek refuge under weeds and dead leaves instead.	No	**Presumed absent.** No suitable habitat is present on-site.
Phrynosoma blainvillii coast horned lizard	Fed: None CA: SSC	Occurs in a wide variety of vegetation types including coastal sage scrub, annual grassland, chaparral, oak woodland, riparian woodland and coniferous forest. In inland areas, this species is restricted to areas with pockets of open microhabitat, created by disturbance (i.e. fire, floods, roads, grazing, fire breaks). The key elements of such habitats are loose, fine soils with a high sand fraction; an abundance of native ants or other insects; and open areas with limited overstory for basking and low, but relatively dense shrubs for refuge.	No	**Presumed absent.** No suitable habitat is present on-site.

Scientific Name Common Name	**Status**	**Habitat**	**Observed On-site**	**Potential to Occur**
Plegadis chihi white-faced ibis	Fed: None CA: WL	Prefers to feed in fresh emergent wetland, shallow lacustrine waters, muddy ground of wet meadows, and irrigated or flooded partures and croplands. Nests in dense, fresh emergent wetland.	No	**Presumed absent.** No suitable habitat is present on-site.
Polioptila californica californica coastal California gnatcatcher	Fed: **THR** CA: SSC	Obligate resident of sage scrub habitats that are dominated by California sagebrush (*Artemisia californica*). This species generally occurs below 750 feet elevation in coastal regions and below 1,500 feet inland. Ranges from the Ventura County, south to San Diego County and northern Baja California and it is less common in sage scrub with a high percentage of tall shrubs. Prefers habitat with more low-growing vegetation.	No	**Presumed absent.** No suitable habitat is present on-site.
Setophaga petechia yellow warbler	Fed: None CA: SSC	Nests over all of California except the Central Valley, the Mojave Desert region, and high altitudes and the eastern side of the Sierra Nevada. Winters along the Colorado River and in parts of Imperial and Riverside Counties. Nests in riparian areas dominated by willows, cottonwoods, sycamores, or alders or in mature chaparral. May also use oaks, conifers, and urban areas near stream courses.	No	**Presumed absent.** No suitable habitat is present on-site.
Spea hammondii western spadefoot	Fed: None CA: SSC	Prefers open areas with sandy or gravelly soils, in a variety of habitats including mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washed, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Rainpools which do not contain bullfrogs, fish, or crayfish are necessary for breeding.	No	**Presumed absent.** No suitable habitat is present on-site.
Spinus lawrencei Lawrence's goldfinch	Fed: None CA: None	Open woodlands, chaparral, and weedy fields. Closely associated with oaks. Nests in open oak or other arid woodland and chaparral near water.	No	**Presumed absent.** No suitable habitat is present on-site.
Streptocephalus woottoni Riverside fairy shrimp	Fed: **END** CA: None	Freshwater crustacean that is found in vernal pools in the coastal California area.	No	**Presumed absent.** No suitable habitat is present on-site.

Scientific Name Common Name	**Status**	**Habitat**	**Observed On-site**	**Potential to Occur**
Vireo bellii pusillus least Bell's vireo	Fed: **END** CA: **END**	Primarily occupy Riverine riparian habitat that typically feature dense cover within 1 -2 meters of the ground and a dense, stratified canopy. Typically it is associated with southern willow scrub, cottonwood-willow forest, mule fat scrub, sycamore alluvial woodlands, coast live oak riparian forest, arroyo willow riparian forest, or mesquite in desert localities. It uses habitat which is limited to the immediate vicinity of water courses, 2,000 feet elevation in the interior.	No	**Presumed absent.** No suitable habitat is present on-site.
SPECIAL-STATUS PLANT SPECIES				
Allium munzii Munz's onion	Fed: **END** CA: **THR** CNPS: 1B.1	Found in chaparral, cismontane woodland, coastal scrub, pinyon and juniper woodland, valley and foothill grassland. Found at elevations ranging from 974 to 3,510 feet. Blooming period is from March to May.	No	**Presumed absent**. No suitable habitat is present on-site.
Brodiaea filifolia thread-leaved brodiaea	Fed: **END** CA: **THR** CNPS: 1B.1	Grows in chaparral openings, cismontane woodland, coastal scrub, playas, valley and foothill grassland, and vernal pools, often in clay soils. Found at elevations ranging from 82 to 3,675 feet. Blooming period is from March to June.	No	**Presumed absent**. No suitable habitat is present on-site.
Caulanthus simulans Payson's jewelflower	Fed: None CA: None CNPS: 4.2	Occurs on granitic sandy soils in chaparral and coastal scrub habitats. Found at elevations ranging from 295 to 7,218 feet. Blooming period is from February to June.	No	**Presumed absent**. No suitable habitat is present on-site.
Centromadia pungens ssp. laevis smooth tarplant	Fed: None CA: None CNPS: 1B.1	Found in alkaline soils within chenopod scrub, meadows and seeps, playas, riparian woodland, valley and foothill grassland habitats. Found at elevations ranging from 0 to 2,100 feet. Blooming period is from April to September.	No	**Presumed absent**. No suitable habitat is present on-site.
Chorizanthe leptotheca Peninsular spineflower	Fed: None CA: None CNPS: 4.2	Found in granitic soils within chaparral, coast scrub, and lower montane coniferous forest habitats. Found at elevations ranging from 984 to 6,234 feet. Blooming period is from May to August.	No	**Presumed absent**. No suitable habitat is present on-site.
Chorizanthe parryi* var. *parryi Parry's spineflower	Fed: None CA: None CNPS: 1B.1	Occurs on sandy and/or rocky soils in chaparral, coastal sage scrub, and sandy openings within alluvial washes and margins. Found at elevations ranging from 951 to 3,773 feet. Blooming period is from April to June.	No	**Presumed absent**. No suitable habitat is present on-site.

Scientific Name Common Name	**Status**	**Habitat**	**Observed On-site**	**Potential to Occur**
Chorizanthe polygonoides var. longispina long-spined spineflower	Fed: None CA: None CNPS: 1B.2	Typically found on clay lenses which are largely devoid of shrubs. Can be found on the periphery of vernal pool habitat and even on the periphery of montane meadows near vernal seeps. Found at elevations ranging from 98 to 5,020 feet. Blooming period is from April to July.	No	**Presumed absent**. No suitable habitat is present on-site.
Convolvulus simulans small-flowered morning-glory	Fed: None CA: None CNPS: 4.2	Grows in clay soils within serpentinite seeps, chaparral, coastal scrub, valley and foothill grassland habitats. Found at elevations ranging from 98 to 2,297 feet. Blooming period is from March to July.	No	**Presumed absent**. No suitable habitat is present on-site.
Deinandra paniculata paniculate tarplant	Fed: None CA: None CNPS: 4.2	Typically found in vernally mesic, sometimes sandy soils in coastal scrub, valley and foothill grasslands, and vernal pools. Found at elevations ranging from 82 to 3,084 feet. Blooming period is from April to November.	No	**Presumed absent**. No suitable habitat is present on-site.
Harpagonella palmeri Palmer's grapplinghook	Fed: None CA: None CNPS: 4.2	Occurs on clay soils in chaparral, coastal scrub, and valley and foothill grasslands. Found at elevations ranging from 66 to 3,133 feet. Blooming period is from March to May.	No	**Presumed absent**. No suitable habitat is present on-site.
Juglans californica southern California black walnut	Fed: None CA: None CNPS: 4.2	Found in chaparral, cismontane woodland, coastal scrub, and riparian woodland habitats. Found at elevations ranging from 164 to 2,953 feet. Blooming period is from March to August.	No	**Presumed absent**. No suitable habitat is present on-site.
Lasthenia glabrata* ssp. *coulteri Coulter's goldfields	Fed: None CA: None CNPS: 1B.1	Prefers playas, vernal pools, and coastal salt marshes and swamps. Found at elevations ranging from 3 to 4,003 feet. Blooming period is from February to June.	No	**Presumed absent**. No suitable habitat is present on-site.
Lepidium virginicum var. robinsonii Robinson's pepper-grass	Fed: None CA: None CNPS: 4.3	Dry soils on chaparral and coastal sage scrub. Found at elevations ranging from 3 to 2,904 feet. Blooming period is from January to July.	No	**Presumed absent**. No suitable habitat is present on-site.
Microseris douglasii* ssp. *platycarpha small-flowered microseris	Fed: None CA: None CNPS: 4.2	Occurs in clay soils in cismontane woodland, coastal scrub, valley and foothill grasslands, and around vernal pools. Found at elevations ranging from 49 to 3,510 feet. Blooming period is from March to May.	No	**Presumed absent**. No suitable habitat is present on-site.
Myosurus minimus ssp. apus little mousetail	Fed: None CA: None CNPS: 3.1	Occurs in alkaline soils in valley and foothill grassland and vernal pools. Found at elevations ranging from 66 to 2,100 feet. Blooming period is from March to June.	No	**Presumed absent**. No suitable habitat is present on-site.

Scientific Name Common Name	**Status**	**Habitat**	**Observed On-site**	**Potential to Occur**
Navarretia fossalis spreading navarretia	Fed: **THR** CA: None CNPS: 1B.1	Grows in chenopod scrub, assorted shallow freshwater marshes and swamps, playas, and vernal pools. Found at elevations ranging from 98 to 2,149 feet. Blooming period is from April to June.	No	**Presumed absent**. No suitable habitat is present on-site.
Orcuttia californica California Orcutt grass	Fed: **END** CA: **END** CNPS: 1B.1	Primarily restricted to the southern basaltic claypan vernal pools at the Santa Rosa Plateau, and alkali vernal pools at Skunk Hollow, and at Salt Creek. Grows in elevations ranging from 45 to 2,165 feet above msl. Blooming period is from April to August.	No	**Presumed absent**. No suitable habitat is present on-site.
CDFW SENSITIVE HABITATS				
Southern Coast Live Oak Riparian Forest	CDFW Sensitive Habitat	Open to locally dense evergreen riparian woodlands dominated by *Quercus agrifolia*. This type appears to be richer in herbs and poorer in understory shrubs than other riparian communities. Bottomlands and outer floodplains along larger streams, on fine-grained, rich alluvium. Canyons and valleys of coastal southern California.	No	**Absent**
Southern Cottonwood Willow Riparian Forest	CDFW Sensitive Habitat	Dominated by cottonwood (*Populus* ssp.) and willow (*Salix* ssp.) trees and shrubs. Considered to be an early successional stage as both species are known to germinate almost exclusively on recently deposited or exposed alluvial soils.	No	**Absent**

U.S. Fish and Wildlife Service (Fed) - Federal
END- Federal Endangered
THR- Federal Threatened

California Department of Fish and Wildlife (CA) - California
END- California Endangered
THR- California Threatened
Candidate- Candidate for listing under the California Endangered Species Act
FP- California Fully Protected
SSC- Species of Special Concern
WL- Watch List

California Native Plant Society (CNPS)
California Rare Plant Rank
1B Plants Rare, Threatened, or Endangered in California and Elsewhere
2B Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
3 Plants About Which More Information is Needed – A Review List
4 Plants of Limited Distribution – A Watch List

CNPS Threat Ranks
0.1- Seriously threatened in California
0.2- Moderately threatened in California
0.3- Not very threatened in California

Attachment D

Regulations

Special status species are native species that have been afforded special legal or management protection because of concern for their continued existence. There are several categories of protection at both federal and state levels, depending on the magnitude of threat to continued existence and existing knowledge of population levels.

Federal Regulations

Endangered Species Act of 1973

Federally listed threatened and endangered species and their habitats are protected under provisions of the Federal Endangered Species Act (ESA). Section 9 of the ESA prohibits "take" of threatened or endangered species. "Take" under the ESA is defined as to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any of the specifically enumerated conduct." The presence of any federally threatened or endangered species that are in a project area generally imposes severe constraints on development, particularly if development would result in "take" of the species or its habitat. Under the regulations of the ESA, the United States Fish and Wildlife Service (USFWS) may authorize "take" when it is incidental to, but not the purpose of, an otherwise lawful act.

Critical Habitat is designated for the survival and recovery of species listed as threatened or endangered under the ESA. Critical Habitat includes those areas occupied by the species, in which are found physical and biological features that are essential to the conservation of an ESA listed species and which may require special management considerations or protection. Critical Habitat may also include unoccupied habitat if it is determined that the unoccupied habitat is essential for the conservation of the species.

Whenever federal agencies authorize, fund, or carry out actions that may adversely modify or destroy Critical Habitat, they must consult with USFWS under Section 7 of the ESA. The designation of Critical Habitat does not affect private landowners, unless a project they are proposing uses federal funds, or requires federal authorization or permits (e.g., funding from the Federal Highway Administration or a permit from the U.S. Army Corps of Engineers (Corps)).

If USFWS determines that Critical Habitat will be adversely modified or destroyed from a proposed action, the USFWS will develop reasonable and prudent alternatives in cooperation with the federal institution to ensure the purpose of the proposed action can be achieved without loss of Critical Habitat. If the action is not likely to adversely modify or destroy Critical Habitat, USFWS will include a statement in its biological opinion concerning any incidental take that may be authorized and specify terms and conditions to ensure the agency is in compliance with the opinion.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 U.S. Government Code [USC] 703) makes it unlawful to pursue, capture, kill, possess, or attempt to do the same to any migratory bird or part, nest, or egg of any such bird listed in wildlife protection treaties between the United States, Great Britain, Mexico, Japan, and the countries of the former Soviet Union, and authorizes the U.S. Secretary of the Interior to protect and regulate the taking of migratory birds. It establishes seasons and bag limits for hunted species and protects migratory birds, their occupied nests, and their eggs (16 USC 703; 50 CFR 10, 21).

The MBTA covers the taking of any nests or eggs of migratory birds, except as allowed by permit pursuant to 50 CFR, Part 21. Disturbances causing nest abandonment and/or loss of reproductive effort (i.e., killing or abandonment of eggs or young) may also be considered "take." This regulation seeks to protect migratory birds and active nests.

In 1972, the MBTA was amended to include protection for migratory birds of prey (e.g., raptors). Six families of raptors occurring in North America were included in the amendment: Accipitridae (kites, hawks, and eagles); Cathartidae (New World vultures); Falconidae (falcons and caracaras); Pandionidae (ospreys); Strigidae (typical owls); and Tytonidae (barn owls). The provisions of the 1972 amendment to the MBTA protects all species and subspecies of the families listed above. The MBTA protects over 800 species including geese, ducks, shorebirds, raptors, songbirds and many relatively common species.

State Regulations

California Environmental Quality Act (CEQA)

The California Environmental Quality Act (CEQA) provides for the protection of the environment within the State of California by establishing State policy to prevent significant, avoidable damage to the environment through the use of alternatives or mitigation measures for projects. It applies to actions directly undertaken, financed, or permitted by State lead agencies. If a project is determined to be subject to CEQA, the lead agency will be required to conduct an Initial Study (IS); if the IS determines that the project may have significant impacts on the environment, the lead agency will subsequently be required to write an Environmental Impact Report (EIR). A finding of non-significant effects will require either a Negative Declaration or a Mitigated Negative Declaration instead of an EIR. Section 15380 of the CEQA Guidelines independently defines "endangered" and "rare" species separately from the definitions of the California Endangered Species Act (CESA). Under CEQA, "endangered" species of plants or animals are defined as those whose survival and reproduction in the wild are in immediate jeopardy, while "rare" species are defined as those who are in such low numbers that they could become endangered if their environment worsens.

California Endangered Species Act (CESA)

In addition to federal laws, the state of California implements the CESA which is enforced by CDFW. The CESA program maintains a separate listing of species beyond the FESA, although the provisions of each act are similar.

State-listed threatened and endangered species are protected under provisions of the CESA. Activities that may result in "take" of individuals (defined in CESA as; "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill") are regulated by CDFW. Habitat degradation or modification is not included in the definition of "take" under CESA. Nonetheless, CDFW has interpreted "take" to include the destruction of nesting, denning, or foraging habitat necessary to maintain a viable breeding population of protected species.

The State of California considers an endangered species as one whose prospects of survival and reproduction are in immediate jeopardy. A threatened species is considered as one present in such small numbers throughout its range that it is likely to become an endangered species in the near future in the

absence of special protection or management. A rare species is one that is considered present in such small numbers throughout its range that it may become endangered if its present environment worsens. State threatened and endangered species are fully protected against take, as defined above.

The CDFW has also produced a species of special concern list to serve as a species watch list. Species on this list are either of limited distribution or their habitats have been reduced substantially, such that a threat to their populations may be imminent. Species of special concern may receive special attention during environmental review, but they do not have formal statutory protection. At the federal level, USFWS also uses the label species of concern, as an informal term that refers to species which might be in need of concentrated conservation actions. As the Species of Concern designated by USFWS do not receive formal legal protection, the use of the term does not necessarily ensure that the species will be proposed for listing as a threatened or endangered species.

Fish and Game Code

Fish and Game Code Sections 3503, 3503.5, 3511, and 3513 are applicable to natural resource management. For example, Section 3503 of the Code makes it unlawful to destroy any birds' nest or any birds' eggs that are protected under the MBTA. Further, any birds in the orders Falconiformes or Strigiformes (Birds of Prey, such as hawks, eagles, and owls) are protected under Section 3503.5 of the Fish and Game Code which makes it unlawful to take, possess, or destroy their nest or eggs. A consultation with CDFW may be required prior to the removal of any bird of prey nest that may occur on a project site. Section 3511 of the Fish and Game Code lists fully protected bird species, where the CDFW is unable to authorize the issuance of permits or licenses to take these species. Pertinent species that are State fully protected by the State include golden eagle (*Aquila chrysaetos*) and white-tailed kite (*Elanus leucurus*). Section 3513 of the Fish and Game Code makes it unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA.

Native Plant Protection Act

Sections 1900–1913 of the Fish and Game Code were developed to preserve, protect, and enhance Rare and Endangered plants in the state of California. The act requires all state agencies to use their authority to carry out programs to conserve Endangered and Rare native plants. Provisions of the Native Plant Protection Act prohibit the taking of listed plants from the wild and require notification of the CDFW at least ten days in advance of any change in land use which would adversely impact listed plants. This allows the CDFW to salvage listed plant species that would otherwise be destroyed.

California Native Plant Society Rare and Endangered Plant Species

Vascular plants listed as rare or endangered by the CNPS, but which have no designated status under FESA or CESA are defined as follows:

California Rare Plant Rank

1A- Plants Presumed Extirpated in California and either Rare or Extinct Elsewhere

1B- Plants Rare, Threatened, or Endangered in California and Elsewhere

2A- Plants Presumed Extirpated in California, But More Common Elsewhere

2B- Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere

3- Plants about Which More Information is Needed - A Review List

4- Plants of Limited Distribution - A Watch List

Threat Ranks

.1- Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)

.2- Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)

.3- Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known).

Local Policies

Western Riverside County MSHCP

The MSHCP is a comprehensive, multi-jurisdictional HCP focusing on conservation of species and their associated habitats in western Riverside County. The goal of the MSHCP is to maintain biological and ecological diversity within a rapidly urbanizing region.

The approval of the MSHCP and execution of the Implementing Agreement (IA) by the wildlife agencies allows signatories of the IA to issue "take" authorizations for all species covered by the MSHCP, including state- and federal-listed species as well as other identified sensitive species and/or their habitats. Each city or local jurisdiction will impose a Development Mitigation Fee for projects within their jurisdiction. With payment of the mitigation fee to the County and compliance with the survey requirements of the MSHCP where required, full mitigation in compliance with the California Environmental Quality Act (CEQA), National Environmental Policy Act (NEPA), CESA, and FESA will be granted. The Development Mitigation Fee varies according to project size and project description. The fee for industrial development is $7,382 per acre (County Ordinance 810.2). Payment of the mitigation fee and compliance with the requirements of Section 6.0 of the MSHCP are intended to provide full mitigation under CEQA, NEPA, CESA, and FESA for impacts to the species and habitats covered by the MSHCP pursuant to agreements with the USFWS, the CDFW, and/or any other appropriate participating regulatory agencies and as set forth in the IA for the MSHCP.

There are three key agencies that regulate activities within inland streams, wetlands, and riparian areas in California. The Corps Regulatory Branch regulates activities pursuant to Section 404 of the Federal Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act. Of the State agencies, the CDFG regulates activities under the Fish and Game Code Section 1600-1616, and the Regional Board regulates activities pursuant to Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act.

Federal Regulations

Section 404 of the Clean Water Act

Since 1972, the Corps and U.S. Environmental Protection Agency (EPA) have jointly regulated the filling of "waters of the U.S.," including wetlands, pursuant to Section 404 of the Clean Water Act (CWA). The Corps has regulatory authority over the discharge of dredged or fill material into the waters of the United States under Section 404 of the CWA. The Corps and EPA define "fill material" to include any "material placed in waters of the United States where the material has the effect of: (i) replacing any portion of a water of the United States with dry land; or (ii) changing the bottom elevation of any portion of the waters of the United States." Examples include, but are not limited to, sand, rock, clay, construction debris, wood chips, and "materials used to create any structure or infrastructure in the waters of the United States." In order to further define the scope of waters protected under the CWA, the Corps and EPA published the Clean Water Rule on June 29, 2015. Pursuant to the Clean Water Rule, the term "*waters of the United States*" is defined as follows:

(i) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide.

(ii) All interstate waters, including interstate wetlands[1].

(iii) The territorial seas.

(iv) All impoundments of waters otherwise defined as waters of the United States under the definition.

(v) All tributaries[2] of waters identified in paragraphs (i) through (iii) mentioned above.

(vi) All waters adjacent[3] to a water identified in paragraphs (i) through (v) mentioned above, including wetlands, ponds, lakes, oxbows, impoundments, and similar waters.

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1 The term *wetlands* means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

2 The terms *tributary* and *tributaries* each mean a water that contributes flow, either directly or through another water (including an impoundment identified in paragraph (iv) mentioned above), to a water identified in paragraphs (i) through (iii) mentioned above, that is characterized by the presence of the physical indicators of a bed and banks and an ordinary high water mark.

3 The term *adjacent* means bordering, contiguous, or neighboring a water identified in paragraphs (i) through (v) mentioned above, including waters separated by constructed dikes or barriers, natural river berms, beach dunes, and the like.

(vii) All prairie potholes, Carolina bays and Delmarva bays, Pocosins, western vernals pools, Texas coastal prairie wetlands, where they are determined, on a case-specific basis, to have a significant nexus to a water identified in paragraphs (i) through (iii) meantioned above.

(viii) All waters located within the 100-year floodplain of a water identified in paragraphs (i) through (iii) mentioned above and all waters located within 4,000 feet of the high tide line or ordinary high water mark of a water identified in paragraphs (i) through (v) mentioned above, where they are determined on a case-specific basis to have a significant nexus to a waters identified in paragraphs (i) through (iii) mentioned above.

The following features are not defined as "waters of the United States" even when they meet the terms of paragraphs (iv) through (viii) mentioned above:

(i) Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the Clean Water Act.

(ii) Prior converted cropland.

(iii) The following ditches:

(A) Ditches with ephemeral flow that are not a relocated tributary or excavated in a tributary.
(B) Ditches with intermittent flow that are not a relocated tributary, excavated in a tributary, or drain wetlands.
(C) Ditches that do not flow, either directly or through another water, into a water of the United States as identified in paragraphs (i) through (iii) of the previous section.

(iv) The following features:

(A) Artificially irrigated areas that would revert to dry land should application of water to that area cease;
(B) Artificial, constructed lakes and ponds created in dry land such as farm and stock watering ponds, irrigation ponds, settling basins, fields flooded for rice growing, log cleaning ponds, or cooling ponds;
(C) Artificial reflecting pools or swimming pools created in dry land;
(D) Small ornamental waters created in dry land;
(E) Water-filled depressions created in dry land incidental to mining or construction activity, including pits excavated for obtaining fill, sand, or gravel that fill with water;
(F) Erosional features, including gullies, rills, and other ephemeral features that do not meet the definition of a tributary, non-wetland swales, and lawfully constructed grassed waterways; and
(G) Puddles.

(v) Groundwater, including groundwater drained through subsurface drainage systems.

(vi) Stormwater control features constructed to convey, treat, or store stormwater that are created in dry land.

Section 401 of the Clean Water Act

Pursuant to Section 401 of the CWA, any applicant for a federal license or permit to conduct any activity which may result in any discharge to waters of the United States must provide certification from the State or Indian tribe in which the discharge originates. This certification provides for the protection of the physical, chemical, and biological integrity of waters, addresses impacts to water quality that may result from issuance of federal permits, and helps insure that federal actions will not violate water quality standards of the State or Indian tribe. In California, there are nine Regional Water Quality Control Boards (Regional Board) that issue or deny certification for discharges to waters of the United States and waters of the State, including wetlands, within their geographical jurisdiction. The State Water Resources Control Board assumed this responsibility when a project has the potential to result in the discharge to waters within multiple Regional Boards.

State Regulations

Fish and Game Code

Fish and Game Code Sections 1600 et. seq. establishes a fee-based process to ensure that projects conducted in and around lakes, rivers, or streams do not adversely impact fish and wildlife resources, or, when adverse impacts cannot be avoided, ensures that adequate mitigation and/or compensation is provided.

Fish and Game Code Section 1602 requires any person, state, or local governmental agency or public utility to notify the CDFW before beginning any activity that will do one or more of the following:

(1) substantially obstruct or divert the natural flow of a river, stream, or lake;
(2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake; or
(3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake.

Fish and Game Code Section 1602 applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the State. CDFW's regulatory authority extends to include riparian habitat (including wetlands) supported by a river, stream, or lake regardless of the presence or absence of hydric soils and saturated soil conditions. Generally, the CDFW takes jurisdiction to the top of bank of the stream or to the outer limit of the adjacent riparian vegetation (outer drip line), whichever is greater. Notification is generally required for any project that will take place in or in the vicinity of a river, stream, lake, or their tributaries. This includes rivers or streams that flow at least periodically or permanently through a bed or channel with banks that support fish or other aquatic life and watercourses having a surface or subsurface flow that support or have supported riparian vegetation. A Section 1602 Streambed Alteration Agreement would be required if impacts to identified CDFW jurisdictional areas occur.

Porter Cologne Act

The California *Porter-Cologne Water Quality Control Act* gives the State very broad authority to regulate waters of the State, which are defined as any surface water or groundwater, including saline waters. The Porter-Cologne Act has become an important tool in the post SWANCC and Rapanos regulatory environment, with respect to the state's authority over isolated and insignificant waters. Generally, any

person proposing to discharge waste into a water body that could affect its water quality must file a Report of Waste Discharge in the event that there is no Section 404/401 nexus. Although "waste" is partially defined as any waste substance associated with human habitation, the Regional Board also interprets this to include fill discharged into water bodies.

April 1, 2020

TUFFLI COMPANY, INC.
Attention: *William H. Cunningham, Jr.*
2245 W. 190th Street
Torrance, California 90504

SUBJECT: Habitat Assessment and Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) Consistency Analysis for the Proposed "The Village" Project Located within Assessor Parcel Numbers (APNs) 333-070-018, -019, and -053 in the City of Menifee, Riverside County, California

Introduction

This report contains the findings of ELMT Consulting's (ELMT) habitat assessment and Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) consistency analysis for the proposed "The Village" project (project site or site) located in the City of Menifee, Riverside County, California. The habitat assessment was conducted by ELMT biologist Travis J. McGill on March 20, 2020 to document baseline conditions and assess the potential for special-status[1] plant and wildlife species to occur within the proposed project site that could pose a constraint to implementation of the proposed project. Special attention was given to the suitability of the on-site habitat to support burrowing owl (*Athene cunicularia*) and several other special-status species identified by the California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB) and other electronic databases as potentially occurring on or within the general vicinity of the project.

The Western Riverside County Regional Conservation Authority (RCA) MSHCP Information Map was queried to determine if the MSHCP identifies any potential survey requirements for the project. Further, the project site was reviewed against the MSHCP to determine if the site is located within any MSHCP areas including Criteria Cells (core habitat and wildlife movement corridors) or areas proposed for conservation. Based on the RCA MSHCP Information Map query and review of the MSHCP, it was determined that the project site is located within the Sun City/Menifee Valley Area Plan of the MSHCP, but is not located within any Criteria Cells or MSHCP Conservation Areas. Further, it was determined that the project site is only located within the designated survey area for burrowing owl (*Athene cuincularia*).

Project Location

The project site is generally located east of Interstate 215, south of State Route 74, west of State Route 79, and north of Domenigoni Parkway in the City of Menifee, Riverside County, California. The project site is

1 As used in this report, "special-status" refers to plant and wildlife species that are federally, State, and MSHCP listed, proposed, or candidates; plant species that have been designated with a California Native Plant Society Rare Plant Rank; wildlife species that are designated by the CDFW as fully protected, species of special concern, or watch list species; and specially protected natural vegetation communities as designated by the CDFW.

depicted on the Romoland quadrangle of the United States Geological Survey's (USGS) 7.5-minute topographic map within Section 23 of Township 5 South, Range 3 West. Specifically, the project site is bordered by Menifee Road on its eastern boundary, Junipero Road on its western boundary, a new residential development to the north, approximately 600 feet north of McCall Boulevard within Assessor Parcel Numbers (APN) 333-070-018, -019, and -053. Refer to Exhibits 1- 3 in Attachment A.

Project Description

The project proposes the grading for, and development of, an apartment complex.

Methodology

Western Riverside County MSHCP Consistency Analysis

The project site is located in the City of Menifee within the Sun City/Menifee Valley Area Plan of the MSHCP. The City is a permittee under the MSHCP and, while the project is not specifically identified as a Covered Activity under Section 7.1 of the MSHCP, public and private development that are outside of Criteria Areas and Public/Quasi-Public (PQP) Lands are permitted under the MSHCP, subject to consistency with MSHCP policies that apply to area outside of Criteria Areas. As such, to achieve coverage, the project must be consistent with the following policies of the MSHCP:

- The policies for the protection of species associated with Riparian/Riverine areas and vernal pools as set forth in Section 6.1.2 of the MSHCP;
- The policies for the protection of Narrow Endemic Plant Species as set forth in Section 6.1.3 of the MSHCP;
- The requirements for conducting additional surveys as set forth in Section 6.3.2 of the MSHCP; and
- Guidelines pertaining to the Urban/Wildlands Interface intended to address indirect effects associated with locating Development in proximity to the MSHCP Conservation Area as detailed in Section 6.1.4 of the MSHCP.

The proposed project was reviewed to determine consistency with the MSHCP. Geographic Information System (GIS) software was utilized to map the project site in relation to MSHCP areas including Criteria Cells (core habitat and wildlife movement corridors) and the Conservation Area, including PQP lands.

Riparian/Riverine Areas and Vernal Pools

The MSHCP requires that an assessment be completed if impacts to riparian/riverine areas and vernal pools could occur from construction of the proposed project. According to the MSHCP, the documentation for the assessment shall include mapping and a description of the functions and values of the mapped areas with respect to the species listed in Section 6.1.2 of the MSHCP, *Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools*.

Aerial photography was reviewed prior to conducting the habitat assessment. The aerials were used to locate and inspect any potential natural drainage features and water bodies that may be considered riparian/riverine habitat and/or fall under the jurisdiction of the United States Army Corps of Engineers (Corps), Regional Water Quality Control Board (Regional Board), or CDFW. In general, surface drainage features indicated

as blue-line streams on USGS maps that are observed or expected to exhibit evidence of flow are considered potential riparian/riverine habitat and are also subject to state and federal regulatory authorities. No riparian/riverine were observed on the project site during the aerial review or during the field investigation.

Narrow Endemic Plant Species

Section 6.1.3 of the MSHCP, *Protection of Narrow Endemic Plant Species*, states that the MSHCP database does not provide sufficient detail to determine the extent of the presence/distribution of Narrow Endemic Plant Species within the MSHCP Plan Area. Additional surveys may be needed to gather information to determine the presence/absence of these species to ensure that appropriate conservation of these species occurs. Based on the RCA MSHCP Information Map query and review of the MSHCP, it was determined that the project site is not located within the designated survey area for Narrow Endemic Plant Species. Through the field investigation, it was determined that the project site does not provide suitable habitat for any of the Narrow Endemic Plant Species listed under Section 6.1.3 of the MSHCP. Therefore, no additional surveys or analysis is required.

Additional Survey Needs and Procedures

In accordance with Section 6.3.2 of the MSHCP, *Additional Survey Needs and Procedures*, additional surveys may be needed for certain species in order to achieve coverage for these species. The query of the RCA MSHCP Information Map and review of the MSHCP determined that the project site is located within the designated survey area for burrowing owl as depicted in Figure 6-4 within Section 6.3.2 of the MSHCP. No other special-status wildlife species surveys were identified.

Urban/Wildlands Interface Guidelines

Section 6.1.4 of the MSHCP, *Guidelines Pertaining to Urban/Wildlands Interface,* is intended to address indirect effects associated with development in proximity to MSHCP Conservation Areas. The Urban/Wildlife Interface Guidelines are intended to ensure that indirect project-related impacts to the MSHCP Conservation Area, including drainage, toxics, lighting, noise, invasive plant species, barriers, and grading/land development, are avoided or minimized. The project site is not located within or immediately adjacent to any Criteria Cells, corridors, or linkages. Therefore, the urban/Wildlands Interface Guidelines do not apply to this project.

Literature Review

The first step in determining if a project is consistent with the above listed sections of the MSHCP is to conduct a literature review and records search for special-status biological resources potentially occurring on or within the vicinity of the project site. Previously recorded occurrences of special-status plant and wildlife species and their proximity to the project were determined through a query of the CDFWs CNDDB Rarefind 5, the California Native Plant Society (CNPS) Electronic Inventory of Rare and Endangered Vascular Plants of California, Calflora Database, compendia of special-status species published by CDFW, United States Fish and Wildlife Service (USFWS) species listings, and species covered within the MSHCP and associated technical documents.

All available reports, survey results, and literature detailing the biological resources previously observed on or within the vicinity of the project site was reviewed to understand existing site conditions and note the extent of any disturbances that have occurred on the project site that would otherwise limit the distribution

of special-status biological resources. Standard field guides and texts were reviewed for specific habitat requirements of special-status and non-special-status biological resources, as well as the following resources:

- Google Earth Pro historic aerial imagery (1996-2018);
- United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS), Soil Survey[2];
- USFWS Critical Habitat designations for Threatened and Endangered Species;
- Stephen's Kangaroo Rat Habitat Conservation Plan; and
- RCA MSHCP Information Map.

The literature review provided a baseline from which to inventory the biological resources potentially occurring on the project site. The CNDDB database was used, in conjunction with ArcGIS software, to locate the nearest recorded occurrences of special-status species and determine the distance from the project.

Habitat Assessment/Field Investigation

Following the literature review, biologist Travis J. McGill inventoried and evaluated the condition of the habitat within the project site on March 20, 2020. Plant communities identified on aerial photographs during the literature review were verified by walking meandering transects through the plant communities and along boundaries between plant communities. In addition, aerial photography was reviewed prior to the site investigation to locate potential natural corridors and linkages that may support the movement of wildlife through the area. These areas identified on aerial photography were then walked during the field survey.

All plant and wildlife species observed, as well as dominant plant species within each plant community, were recorded. Plant species observed during the field survey were identified by visual characteristics and morphology in the field. Unusual and less familiar plant species were photographed during the field survey and identified in the laboratory using taxonomical guides. Wildlife detections were made through observation of scat, trails, tracks, burrows, nests, and/or visual and aural observation. In addition, site characteristics such as soil condition, topography, hydrology, anthropogenic disturbances, indicator species, condition of on-site plant communities, and presence of potential jurisdictional drainage and/or wetland features were noted.

Soil Series Assessment

On-site and adjoining soils were researched prior to the field survey using the USDA NRCS Soil Survey for Western Riverside Area, California. In addition, a review of the local geological conditions and historical aerial photographs was conducted to assess the ecological changes that the project site has undergone.

Plant Communities

Plant communities were mapped using 7.5-minute USGS topographic base maps and aerial photography.

2 A soil series is defined as a group of soils with similar profiles developed from similar parent materials under comparable climatic and vegetation conditions. These profiles include major horizons with similar thickness, arrangement, and other important characteristics, which may promote favorable conditions for certain biological resources.

The plant communities were delineated on an aerial photograph, classified in accordance with those described in the MSHCP, and then digitized into GIS Arcview. The Arcview application was used to compute the area of each plant community in acres.

Plants

Common plant species observed during the field survey were identified by visual characteristics and morphology in the field and recorded in a field notebook. Unusual and less familiar plants were photographed in the field and identified in the laboratory using taxonomic guides. Taxonomic nomenclature used in this study follows the 2012 Jepson Manual (Hickman 2012). In this report, scientific names are provided immediately following common names of plant species (first reference only).

Wildlife

Wildlife species detected during field surveys by sight, calls, tracks, scat, or other sign were recorded during surveys in a field notebook. Field guides were used to assist with identification of wildlife species during the survey included The Sibley Field Guide to the Birds of Western North America (Sibley 2003), A Field Guide to Western Reptiles and Amphibians (Stebbins 2003), and A Field Guide to Mammals of North America (Reid 2006). Although common names of wildlife species are fairly well standardized, scientific names are provided immediately following common names in this report (first reference only).

Jurisdictional Drainages and Wetlands

Aerial photography was reviewed prior to conducting a field investigation in order to locate and inspect any potential natural drainage features, ponded areas, or water bodies that may be considered riparian/riverine habitat and/or fall under the jurisdiction of the Corps, Regional Board, or CDFW. In general, surface drainage features indicated as blue-line streams on USGS maps that are observed or expected to exhibit evidence of flow are considered potential riparian/riverine habitat and are also subject to state and federal regulatory jurisdiction.

Stephen's Kangaroo Rat Habitat Conservation Plan

Separate from the consistency review against the policies of the MSHCP, Riverside County established a boundary in 1996 for protecting the Stephens' kangaroo rat (*Dipodomys stephensi*), a federally endangered and state threatened species. The Stephens' kangaroo rat is protected under the Stephens' Kangaroo Rat Habitat Conservation Plan (County Ordinance No. 663.10; SKR HCP). As described in the MSHCP Implementation Agreement, a Section 10(a) Permit, and California Fish and Game Code Section 2081 Management Authorization were issued to the Riverside County Habitat Conservation Agency (RCHCA) for the Long-Term SKR HCP and was approved by the USFWS and CDFW in August 1990 (RCHCA 1996). Relevant terms of the SKR HCP have been incorporated into the MSHCP and its Implementation Agreement. The SKR HCP will continue to be implemented as a separate HCP; however, to provide the greatest conservation for the largest number of Covered Species, the Core Reserves established by the SKR HCP are managed as part of the MSHCP Conservation Area consistent with the SKR HCP. Actions shall not be taken as part of the implementation of the SKR HCP that will significantly affect other Covered Species. Take of Stephens' kangaroo rat outside of the boundaries but within the MSHCP area is authorized under the MSHCP and the associated permits.

The project site is located within the Mitigation Fee Area of the SKR HCP. Therefore, the applicant will be

required to pay the SKR HCP Mitigation Fee prior to development of the project site.

Existing Site Condition

The project site is relatively flat with no areas of significant topographic relief at an approximate elevation of 1,457 to 1,469 feet above mean sea level. Based on the NRCS USDA Web Soil Survey, the project site is underlain by the following soil units: Cieneba rocky sandy loam (15 to 50 percent slopes), Exeter sandy loam (2 to 8 percent slopes, eroded), Exeter sandy loam (2 to 8 percent slopes, deep, eroded), Exeter very fine sandy loam (0 to 5 percent slopes, deep), Greenfield sandy loam (0 to 2 percent slopes), and Hanford coarse sandy loam (2 to 8 percent slopes). Refer to Exhibit 4, *Soils*, in Attachment A. Soils on-site have been mechanically disturbed and heavily compacted from historic land uses (i.e., agricultural activities, grading activities and surrounding development).

The project site is bordered by developments currently under construction to the north and south, residential development to the east, and undeveloped, vacant land, a water detention basin, and a school to the west. Portions of the site are currently being used as staging areas to support adjacent construction. In association with the adjacent development, an underground storm drain was installed, extending north to the south, through the middle of the project site. The underground storm drain daylights into a constructed earthen trapezoidal channel north of the project site in association with the residential development to the north of the project site. Due to surrounding development activities, the project site is bordered by silt fencing. Silt fencing was also found traversing the project site where the underground storm drain was installed.

Vegetation

Due to historic land uses, no native plant communities or natural communities of special concern were observed on or adjacent to the project site. The project site primarily consists of vacant, undeveloped land that has been subject to a variety of anthropogenic disturbances that was historically used for agricultural land uses. The project site no longer is used for agricultural activities but has been subject to on-going weed abatement activities and disturbance associated with surrounding development. These disturbances have eliminated and/or greatly disturbed the natural plant communities that once occurred on and surrounded the project site. Refer to Attachment B, *Site Photographs,* for representative site photographs. No native plant communities will be impacted from implementation of the proposed project.

The project site supports one (1) plant community: non-native grassland, and one land type that would be classified as disturbed (refer to Exhibit 5, *Vegetation* in Attachment A). The non-native grassland plant community is found on both the eastern and western halves of the site where current construction and staging activities are absent. The non-native grassland plant community is dominated by non-native grasses that include mouse barley (*Hordeum murinum*), red brome (*Bromus madritensis*), filaree (*Erodium* sp.), fiddleneck (*Amsinckia menziesii*), and ripgut brome (*Bromus diandrus*). Other common plant species observed in this plant community include bicolor lupine (*Lupinus bicolor*), cheeseweed (*Malva parviflora*), alfalfa (*Medicago sativa*), slender goldfields (*Lasthenia gracilis*), London rocket (*Sisybrium irio*), sweet clover (*Melilotus officinalis*), stinknet (*Oncosiphon piluliferum*), telegraph weed (*Heterotheca grandiflora*), and tidytips (*Layia platyglossa*).

Areas within the project site that are classified as disturbed include those that currently support ongoing construction and staging activities associated with adjacent development. These areas are entirely devoid

of vegetation or support minimal weedy/early successional species like short-podded mustard and filaree.

Wildlife

Plant communities provide foraging habitat, nesting/denning sites, and shelter from adverse weather or predation. This section provides a discussion of those wildlife species that were observed or are expected to occur within the project site. The discussion is to be used a general reference and is limited by the season, time of day, and weather conditions in which the field survey was conducted. Wildlife detections were based on calls, songs, scat, tracks, burrows, and direct observation.

Fish

The MSHCP does not identify any covered or special-status fish species as potentially occurring within the project site. No fish or hydrogeomorphic features (e.g., perennial creeks, ponds, lakes, reservoirs) that would provide suitable habitat for fish were observed on or within the vicinity of the project site. Therefore, no fish are expected to occur and are presumed absent.

Amphibians

The MSHCP does not identify any covered or special-status amphibian species as potentially occurring within the project site. No amphibians or hydrogeomorphic features (e.g., perennial creeks, ponds, lakes, reservoirs) that would provide suitable habitat for amphibian species were observed on or within the vicinity of the project site. Therefore, no amphibians are expected to occur.

Reptiles

The MSHCP does not identify any covered or special-status reptilian species as potentially occurring within the project site. The project site provides a limited amount of habitat for a few reptile species adapted to a high degree of human disturbance associated with the on-site weed abatement activities and development. Common side-blotched lizard (*Uta stansburiana elegans*) was the only reptilian species observed during the field investigation. Other common reptilian species expected to occur include gopher snake (*Pituophis catenifer*), and southern alligator lizard (*Elgaria multicarinata*). Due to the high level of anthropogenic disturbances on-site, and surrounding development, no special-status reptilian species are expected to occur within project site.

Birds

The project site provides minimal foraging habitat for bird species adapted to a high degree of human disturbance. Bird species detected during the field survey included northern mockingbird (*Mimus polyglottos*), mourning dove (*Zenaida macroura*), house finch (*Haemorhouse mexicanus*), American crow (*Corcus brachyrhynchos*), red-tailed hawk (*Buteo jamaicensis*), Anna's hummingbird (*Calypte anna*), bushtit (*Psaltriparus minimus*), and lesser goldfinch (*Spinus psaltria*).

Despite a systematic search of the project site, no burrowing owls or recent signs (i.e., pellets, feathers, castings, or whitewash) were observed during the field investigation. The project site is vegetated with a variety of low-growing plant species that allow for minimal line-of-sight observation favored by burrowing owls. However, the project site lacks suitable burrows (>4 inches in diameter) capable of providing roosting and nesting opportunities. Additionally, the power poles along the eastern boundary of the project site

provide perching opportunities for large raptors (i.e., red-tailed hawk) that can prey on burrowing owls. As a result, burrowing owl was determined to have a low potential to occur on the project site.

Mammals

The MSHCP does not identify any covered or special-status mammalian species as potentially occurring within the project site. No mammalian species were observed during the field investigation. Common mammalian species expected to occur include Audubon's cottontail (*Sylvilagus audubonii*), coyote (*Canis latrans*), opossum (*Didelphis virginiana*), California ground squirrel (*Otospermophilus beecheyi*) and raccoon (*Procyon lotor*). No bat species are expected to occur due to a lack of suitable roosting habitat (i.e., trees, crevices).

Nesting Birds and Raptors

No active nests or birds displaying nesting behavior were observed during the field survey, which was conducted during the breeding season. Although heavily disturbed, the project has the potential to provide minimal foraging and nesting habitat for year-round and seasonal avian residents, raptors, as well as migrating songbirds that could occur in the area that area adapted to disturbed environments. A pre-construction nesting bird clearance survey shall be conducted prior to ground disturbance to ensure no nesting birds will be impacted from site development.

Migratory Corridors and Linkages

Habitat linkages provide connections between larger habitat areas that are separated by development. Wildlife corridors are similar to linkages but provide specific opportunities for animals to disperse or migrate between areas. A corridor can be defined as a linear landscape feature of sufficient width to allow animal movement between two comparatively undisturbed habitat fragments. Adequate cover is essential for a corridor to function as a wildlife movement area. It is possible for a habitat corridor to be adequate for one species yet still inadequate for others. Wildlife corridors are features that allow for the dispersal, seasonal migration, breeding, and foraging of a variety of wildlife species. Additionally, open space can provide a buffer against both human disturbance and natural fluctuations in resources.

The project site has not been identified as occurring in a wildlife corridor or linkage. The proposed project will be confined to existing areas that have been heavily disturbed or developed, are isolated from regional wildlife corridors and linkages, and there are no riparian corridors, creeks, or useful patches of stepping stone habitat (natural areas) within or connecting the improvement areas to a recognized wildlife corridor or linkage. As such, implementation of the proposed project is not expected to impact wildlife movement opportunities. Therefore, impacts to wildlife corridors or linkages are not expected to occur.

Jurisdictional Areas

There are three key agencies that regulate activities within inland streams, wetlands, and riparian areas in California. The Corps Regulatory Branch regulates discharge of dredge or fill materials into "waters of the United States" pursuant to Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act. Of the State agencies, the CDFW regulates alterations to streambed and bank under Fish and Wildlife Code Sections 1600 et seq., and the Regional Board regulates discharges into surface waters pursuant to Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act.

No jurisdictional drainage and/or wetland features were observed on the project site during the field investigation. Further no blueline streams have been recorded on the project site. Therefore, development of the project will not result in impacts to Corps, Regional Board, or CDFW jurisdiction and regulatory approvals will not be required.

It should be noted that surrounding development activities have heavily disturbed the boundaries of the project site by installing silt fencing around the project site, and through the middle of the site on either side of the underground storm drain alignment. Surrounding development has effectively cut off the project site from any potential water draining on the site.

Special-Status Biological Resources

The CNDDB was queried for reported locations of special-status plant and wildlife species as well as natural communities of special concern in the Romoland USGS 7.5-minute quadrangle. A search of published records within these quadrangles were conducted using the CNDDB Rarefind 5 online software and the CDFW BIOS database and the CNPS Inventory of Rare and Endangered Plants of California that supplied information regarding the distribution and habitats of vascular plants in the vicinity of the project site. The habitat assessment evaluated the conditions of the habitat(s) within the boundaries of the project site to determine if the existing plant communities, at the time of the survey, have the potential to provide suitable habitat(s) for special-status plant and wildlife species.

The literature search identified seventeen (17) special-status plant species, fifty (50) special-status wildlife species, and two (2) special-status habitats as having potential to occur within the Romoland quadrangle. Special-status plant and wildlife species were evaluated for their potential to occur within the project site based on habitat requirements, availability and quality of suitable habitat, and known distributions. Species determined to have the potential to occur within the general vicinity are presented in *Table C-1: Potentially Occurring Special-Status Biological Resources*, provided in Attachment C. Refer to Table C-1 for a determination regarding the potential occurrence of special-status plant and wildlife species within the project site.

Special-Status Plants

According to the CNDDB and CNPS, seventeen (17) special-status plant species have been recorded in the Romoland quadrangle (refer to Attachment C). The project site consists of vacant, undeveloped land that have been subject to a variety of anthropogenic disturbances from grading/disking activities, historic agricultural uses, and activities associated with surrounding development. These disturbances have resulted in a majority of the project site being dominated by early successional and non-native vegetation, which has reduced, if not eliminated, the ability of the project site to provide suitable habitat for special-status plant species. Although the field investigation was not conducted during the blooming season for the majority of the special-status plant species known to occur in the general vicinity of the project site, based on habitat requirements for specific special-status plant species and the availability and quality of habitats needed by each species, it was determined that the project site does not provide suitable habitat for special-status species know to occur in the area and are presumed absent.

Special-Status Wildlife

According to the CNDDB, fifty (50) special-status wildlife species have been reported in the Romoland quadrangle (refer to Attachment C). No special-status wildlife species were observed on-site during the habitat assessment. Based on habitat requirements for specific species and the availability and quality of on-site habitats, it was determined that the proposed project site has a moderate potential to support Cooper's hawk (*Accipiter cooperii*), and sharp-shinned hawk (*Accipiter striatus*); and a low potential to support great egret (*Ardea alba*), burrowing owl, white-tailed kite (*Elanus leucurus*), and California horned lark (*Eremophila alpestris actia*). Further it was determined that the project site does not provide suitable habitat for any of the other special-status wildlife species known to occur in the area since the project site has been heavily disturbed from on-site disturbances and surrounding development.

To ensure no impacts to the aforementioned species do not occur from implementation of the proposed project, a pre-construction nesting bird clearance survey shall be conducted prior to ground disturbance. With implementation of the pre-construction nesting bird clearance survey, impacts to the aforementioned species will be less than significant and no mitigation will be required.

Special-Status Plant Communities

The CNDDB lists two (2) special-status habitats as being identified within the Romoland quadrangle: Southern Coast Live Oak Riparian Forest and Southern Cottonwood Willow Riparian Forest. No CDFW special-status plant communities occur within the boundaries of the project site.

Critical Habitat

Under the federal Endangered Species Act, "Critical Habitat" is designated at the time of listing of a species or within one year of listing. Critical Habitat refers to specific areas within the geographical range of a species at the time it is listed that include the physical or biological features that are essential to the survival and eventual recovery of that species. Maintenance of these physical and biological features requires special management considerations or protection, regardless of whether individuals or the species are present or not. All federal agencies are required to consult with the United States Fish and Wildlife Service (USFWS) regarding activities they authorize, fund, or permit which may affect a federally listed species or its designated Critical Habitat. The purpose of the consultation is to ensure that projects will not jeopardize the continued existence of the listed species or adversely modify or destroy its designated Critical Habitat. The designation of Critical Habitat does not affect private landowners, unless a project they are proposing is on federal lands, uses federal funds, or requires federal authorization or permits (e.g., funding from the Federal Highways Administration or a CWA Permit from the Corps). If a there is a federal nexus, then the federal agency that is responsible for providing the funding or permit would consult with the USFWS.

The project site is not located with federally designated Critical Habitat (refer to Exhibit 6, *Critical Habitat*, in Attachment A). The closest designated Critical Habitat is located approximately 3.6 miles northwest of the project site for spreading navarretia (*Navarretia fossalis*) and thread-leaved brodiaea (*Brodiaea filifolia*) along the San Jacinto River, and approximalty 4.10 miles southeast of the project site for coastal California gnatcatcher (*Polioptila californica californica*). Therefore, the loss or adverse modification of Critical Habitat will not occur as a result of the proposed project and consultation with the USFWS will not be required for implementation of the proposed project.

Western Riverside County MSHCP

The project site is located within the Sun City/Menifee Valley Area Plan of the MSHCP but are not located within any Criteria Cells or MSHCP Conservation Areas (refer to Exhibit 7, *MSHCP Criteria Area*, in Attachment A). Additionally, the project is only located within the designated survey area for burrowing owl as depicted in Figures 6-4 within Section 6.3.2 of the MSHCP.

Riparian/Riverine Areas and Vernal Pools

Riparian/Riverine Areas

As identified in Section 6.1.2 of the MSHCP, *Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools*, riparian/riverine areas are defined as areas dominated by trees, shrubs, persistent emergent plants, or emergent mosses and lichens which occur close to or are dependent upon nearby freshwater, or areas with freshwater flowing during all or a portion of the year. Conservation of these areas is intended to protect habitat that is essential to a number of listed or special-status water-dependent fish, amphibian, avian, and plant species. If impacts to riparian/riverine habitat cannot be avoided, a Determination of Biologically Equivalent or Superior Preservation (DBESP) must be developed to address the replacement of lost functions of habitats in regards to the listed species. This assessment is independent from considerations given to "waters of the U.S." and "waters of the State" under the CWA and the California Fish and Game Code.

No jurisdictional drainages, riparian/riverine and/or wetland features were observed within the project site during the field investigation. Therefore, development of the proposed project will not result in impacts to riparian/riverine habitats and a DBESP will not be required for the loss of riparian/riverine habitat from development of the proposed project.

Vernal Pools and Fairy Shrimp Habitat

One of the factors for determining the suitability of the habitat for fairy shrimp would be demonstrable evidence of seasonal ponding in an area of topographic depression that is not subject to flowing waters. These astatic pools are typically characterized as vernal pools. More specifically, vernal pools are seasonal wetlands that occur in depression areas without a continual source of water. They have wetland indicators of all 3 parameters (soils, vegetation, and hydrology) during the wetter portion of the growing season but normally lack wetland indicators of hydrology and/or vegetation during the drier portion of the growing season. Obligate hydrophytes and facultative wetlands plant species are normally dominant during the wetter portion of the growing season. The determination that an area exhibits vernal pool characteristics and the definition of the watershed supporting vernal pool hydrology is made on a case-by-case basis. Such determinations should be considered the length of time the areas exhibits upland and wetland characteristics and the manner in which the area fits into the overall ecological system as a wetland. The seasonal hydrology of vernal pools provides for a unique environment, which supports plants and invertebrates specifically adapted to a regime of winter inundation, followed by an extended period when the pool soils are dry.

Vernal pools are seasonally inundated, ponded areas that only form in regions where specialized soil and climatic conditions exist. During fall and winter rains typical of Mediterranean climates, water collects in shallow depressions where downward percolation of water is prevented by the presence of a hard pan or

clay pan layer (duripan) below the soil surface. Later in the spring when rains decrease and the weather warms, the water evaporates and the pools generally disappear by May. The shallow depressions remain relatively dry until late fall and early winter with the advent of greater precipitation and cooler temperatures. Vernal pools provide unusual "flood and drought" habitat conditions to which certain plant and wildlife species have specifically adapted as well as invertebrate species such as fairy shrimp.

The MSHCP lists two general classes of soils known to be associated with listed and special-status plant species; clay soils and Traver-Domino Willow association soils. The specific clay soils known to be associated with listed and special-status species within the MSHCP plan area include Bosanko, Auld, Altamont, and Porterville series soils, whereas Traver-Domino Willows association includes saline-alkali soils largely located along floodplain areas of the San Jacinto River and Salt Creek. Without the appropriate soils to create the impermeable restrictive layer, none of the special-status plant or wildlife species associated with vernal pools can occur on the project site. None of these soils have been documented within the project site.

A review of recent and historic aerial photographs (1996-2018) of the project site did not provide visual evidence of an astatic or vernal pool conditions within the project site. No ponding was observed, further supporting the fact that the drainage patterns currently occurring on the project site do not follow hydrologic regime needed for vernal pools. From this review of historic aerial photographs and observations during the field investigations, it can be concluded that there is no indication of vernal pools or suitable fairy shrimp habitat occurring within the proposed project site.

Additional Survey Needs and Procedures

The RCA MSHCP Information Map query and review of the MSHCP identified that the project site is located within the designated survey area for burrowing owl as depicted in Figure 6-4 within Section 6.3.2 of the MSHCP.

Burrowing Owl

Burrowing owl is currently designated as a California Species of Special Concern. The burrowing owl is a grassland specialist distributed throughout western North America where it occupies open areas with short vegetation and bare ground within shrub, desert, and grassland environments. Burrowing owls use a wide variety of arid and semi-arid environments with level to gently-sloping areas characterized by open vegetation and bare ground. The western burrowing owl (*A.c. hypugaea*), which occurs throughout the western United States including California, rarely digs its own burrows and is instead dependent upon the presence of burrowing mammals (i.e., California ground squirrels, coyotes, and badgers) whose burrows are often used for roosting and nesting. The presence or absence of colonial mammal burrows is often a major factor that limits the presence or absence of burrowing owls. Where mammal burrows are scarce, burrowing owls have been found occupying man-made cavities, such as buried and non-functioning drain pipes, stand-pipes, and dry culverts. They also require low growth or open vegetation allowing line-of-sight observation of the surrounding habitat to forage and watch for predators. In California, the burrowing owl breeding season extends from the beginning of February through the end of August.

Despite a systematic search of the project site, no burrowing owls or recent signs (i.e., pellets, feathers, castings, or whitewash) were observed during the field investigation. The project site is vegetated with a

variety of low-growing plant species that allow for minimal line-of-sight observation favored by burrowing owls. However, the project site lacks suitable burrows (>4 inches in diameter) capable of providing roosting and nesting opportunities. Additionally, the power poles along the eastern boundary of the project site provide perching opportunities for large raptors (i.e., red-tailed hawk) that can prey on burrowing owls. As a result, burrowing owl was determined to have a low potential to occur on the project site.

Out of an abundance of caution, and to ensure burrowing owl remain absent from the project site, it is recommended that a 30-day burrowing owl pre-construction clearance survey be conducted prior to any ground disturbing activities.

Conclusion

Based on the proposed project footprint, and with the implementation of the recommendations provided in this report, project impacts to special-status plant and wildlife species will be considered less than significant. Therefore, it has been determined that implementation of the project will have no significant impacts on federally, State, or MSHCP listed species known to occur in the general vicinity of the project site. Additionally, the project will have "no effect" on designated Critical Habitats. With completion of the recommendations provided in this report and payment of the SKR HCP mitigation fee and MSHCP mitigation fee, development of the project site is fully consistent with the Western Riverside County MSHCP.

Please do not hesitate to contact Tom McGill at (951) 285-6014 or tmcgill@elmtconsulting.com or Travis McGill at (909) 816-1646 or travismcgill@elmtconsulting.com should you have any questions regarding this proposal.

Sincerely,

Thomas J. McGill, Ph.D.
Managing Director

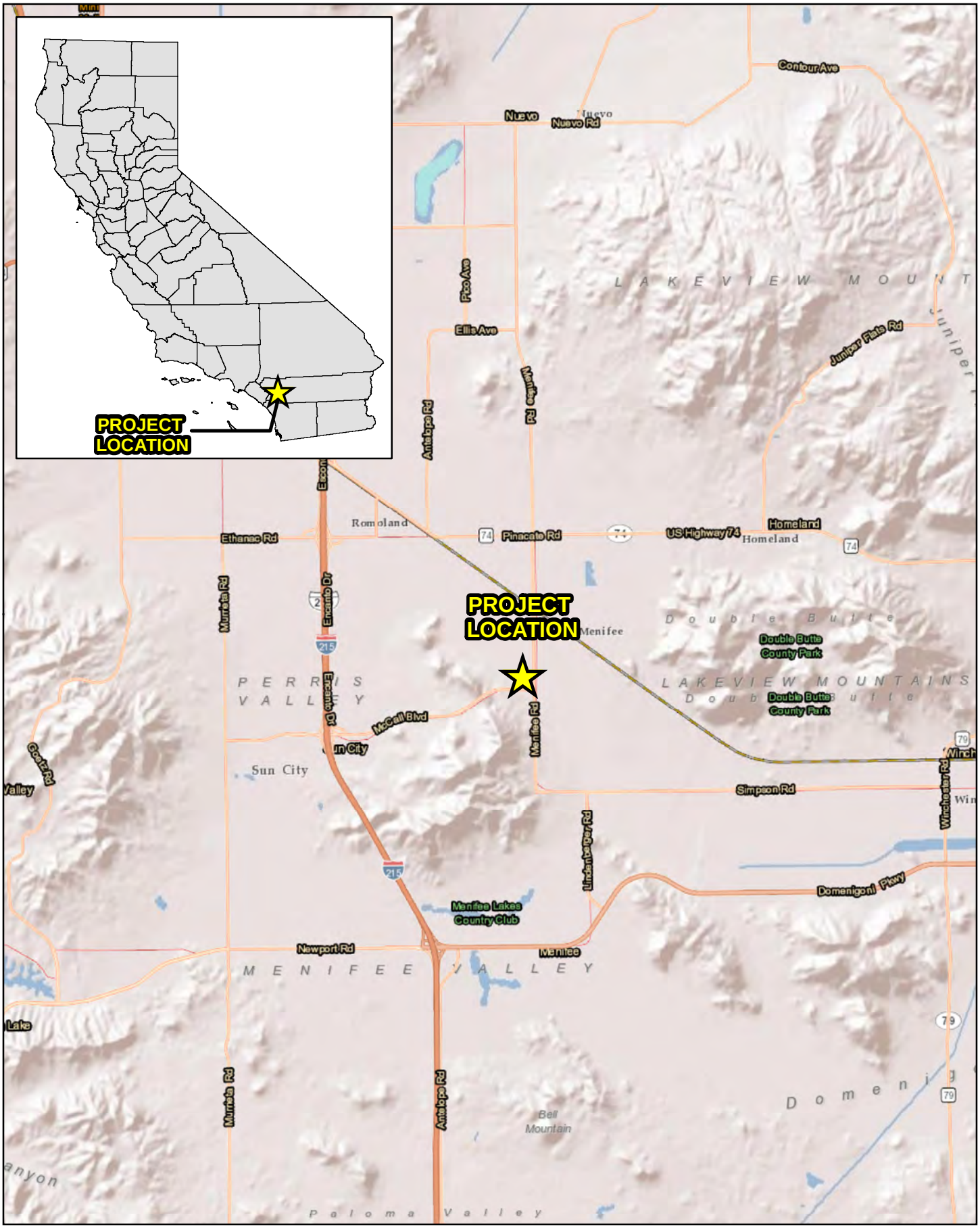
Travis J. McGill
Director

Attachments:

A. *Project Exhibits*
B. *Site Photographs*
C. *Potentially Occurring Special-Status Biological Resources*
D. *Regulations*

Attachment A

Project Exhibits



THE VILLAGE PROJECT
HABITAT ASSESSMENT AND MSHCP CONSISTENCY ANALYSIS

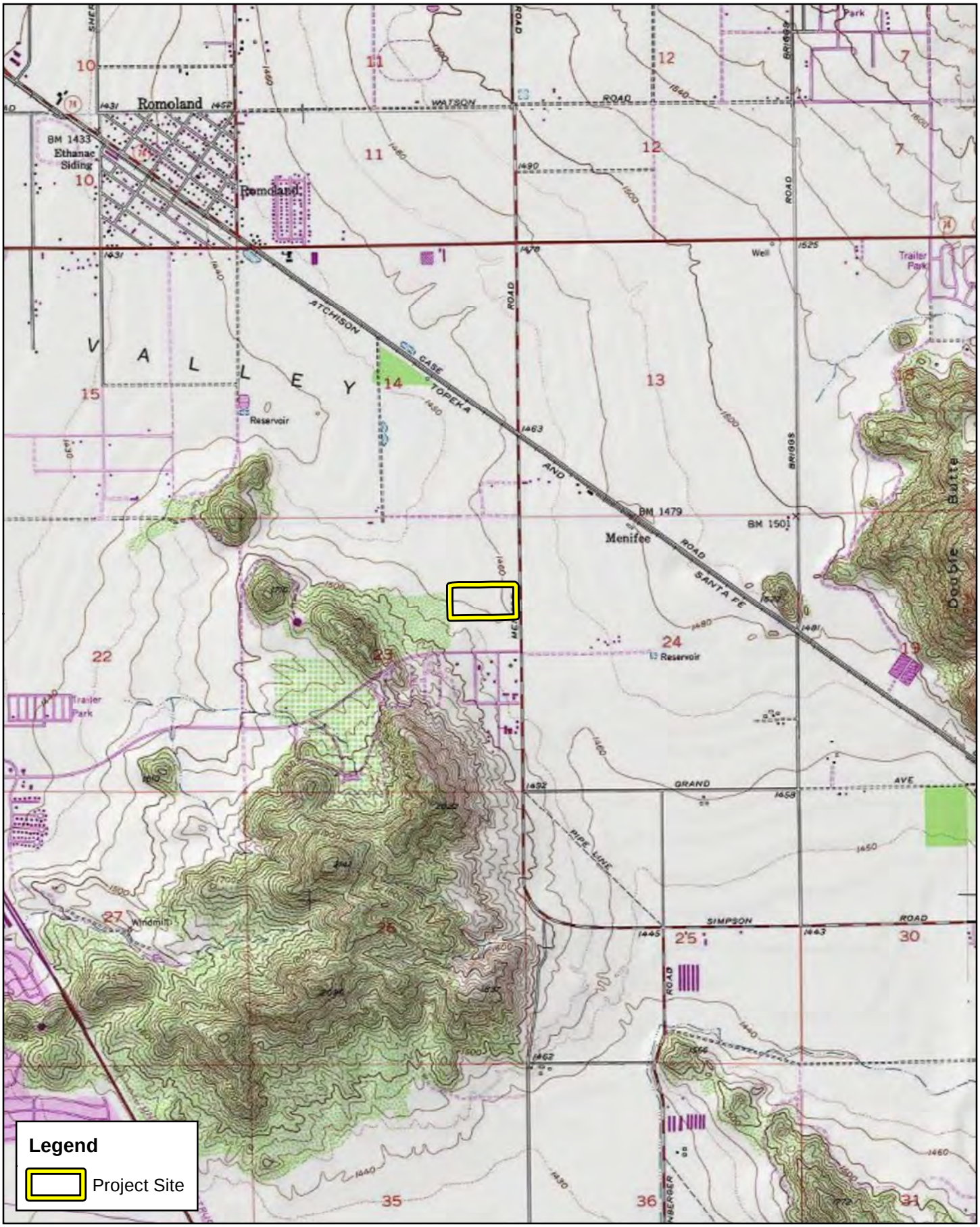
Regional Vicinity

ELMT CONSULTING

0 0.625 1.25 2.5 Miles

Source: World Transportation, World Shaded Relief, Riverside County

Exhibit 1



THE VILLAGE PROJECT
HABITAT ASSESSMENT AND MSHCP CONSISTENCY ANALYSIS

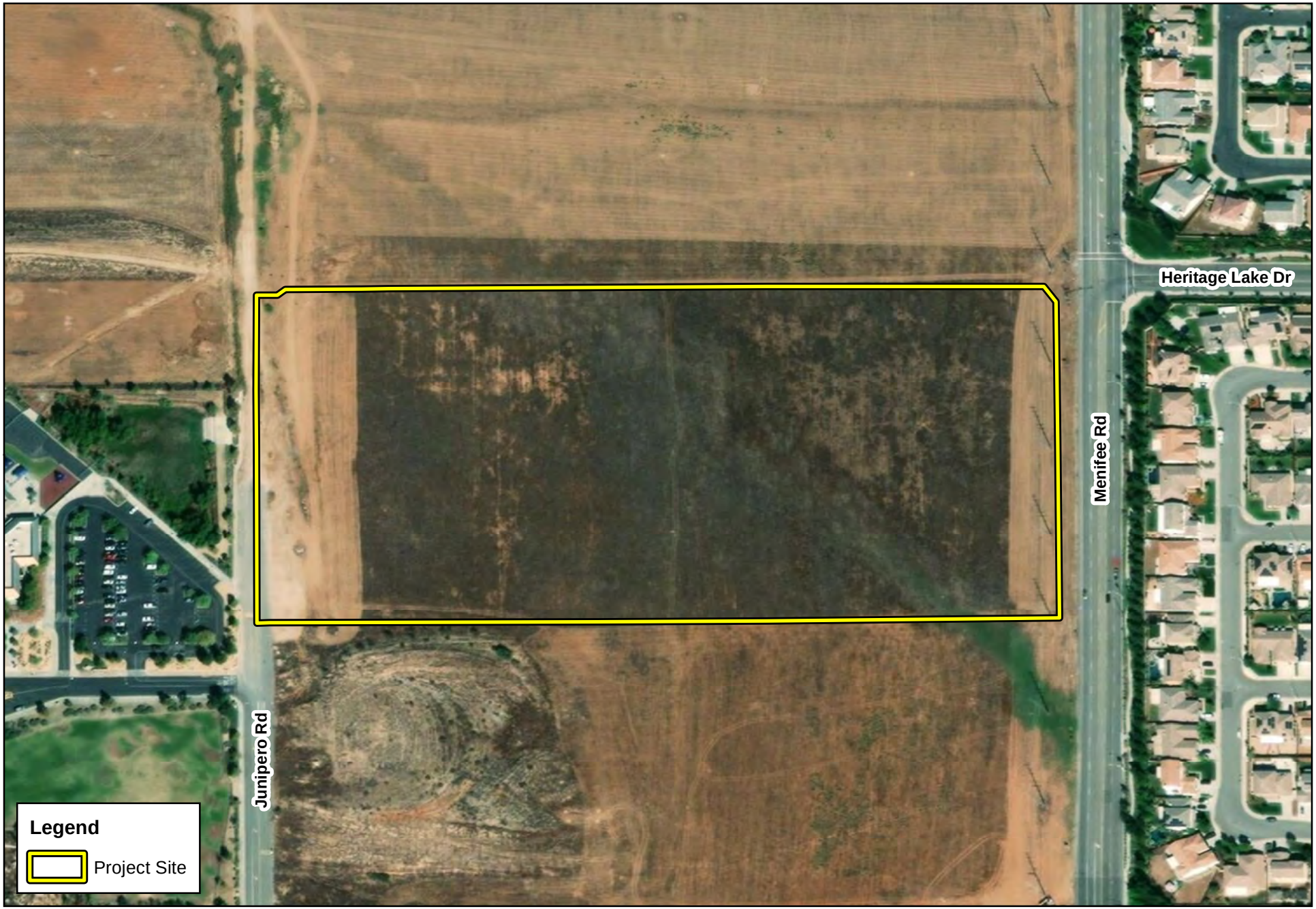
Site Vicinity

ELMT CONSULTING

0 0.25 0.5 1 Miles

Source: ESRI World Topo Basemap, Riverside County

Exhibit 2



ELMT CONSULTING

0 125 250 500 Feet

Source: ESRI Aerial Imagery, Riverside County

THE VILLAGE PROJECT
HABITAT ASSESSMENT AND MSHCP CONSISTENCY ANALYSIS

Project Site

Exhibit 3



ELMT CONSULTING

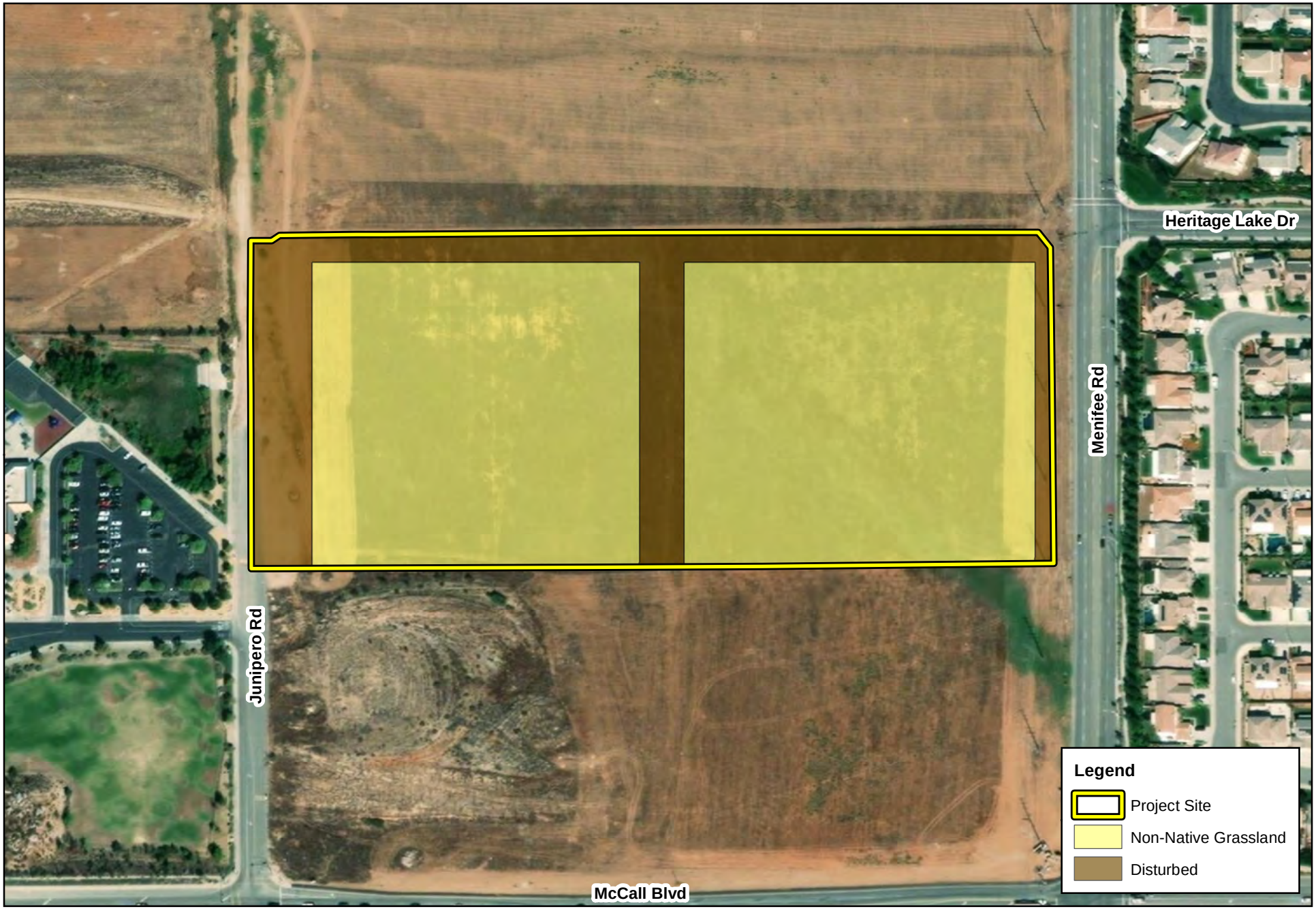
0 125 250 500 Feet

Source: ESRI Aerial Imagery, Soil Survey Geographic Database, Riverside County

THE VILLAGE PROJECT
HABITAT ASSESSMENT AND MSHCP CONSISTENCY ANALYSIS

Soils

Exhibit 4



ELMT CONSULTING

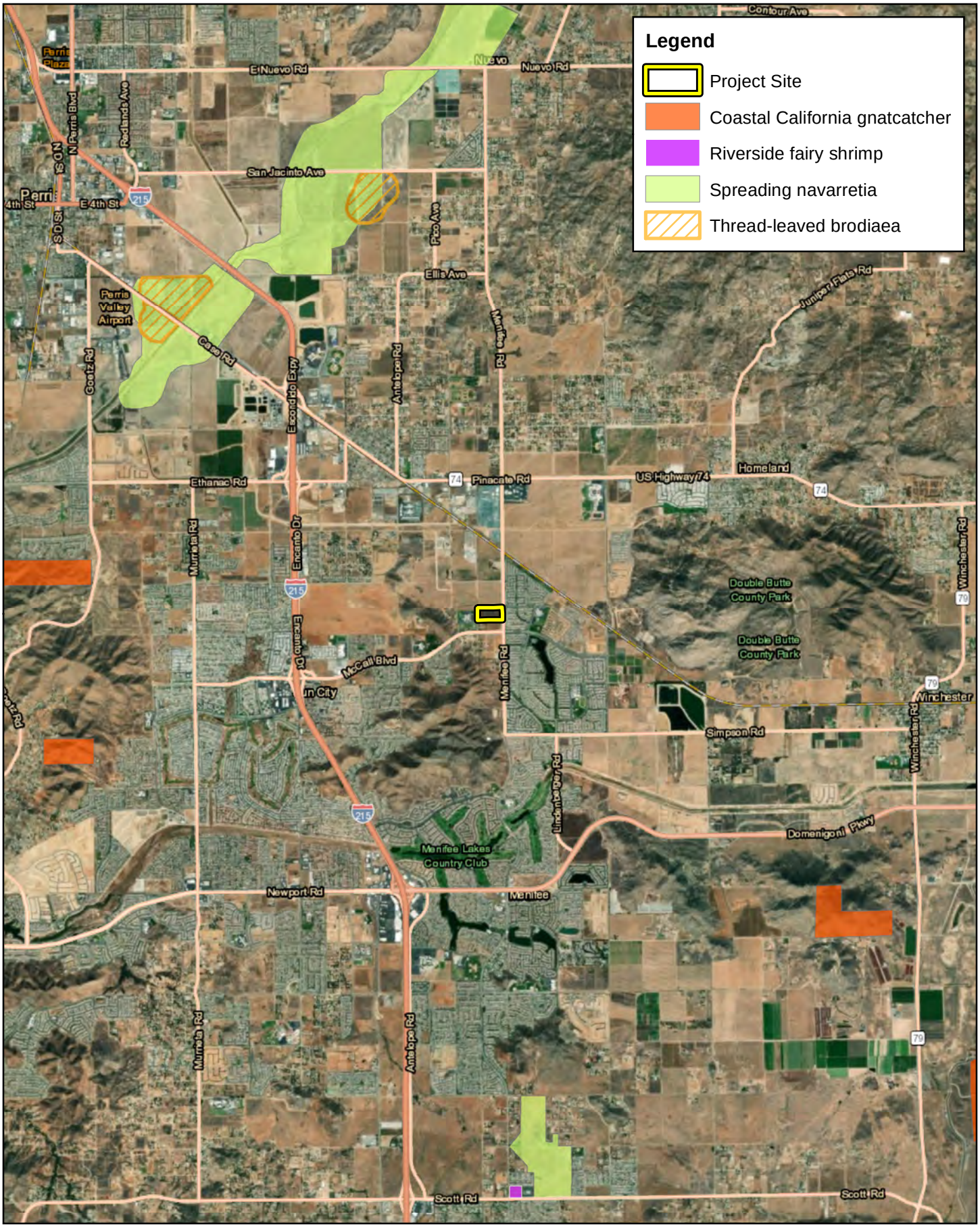
0 125 250 500 Feet

Source: ESRI Aerial Imagery, Riverside County

THE VILLAGE PROJECT
HABITAT ASSESSMENT AND MSHCP CONSISTENCY ANALYSIS

Vegetation

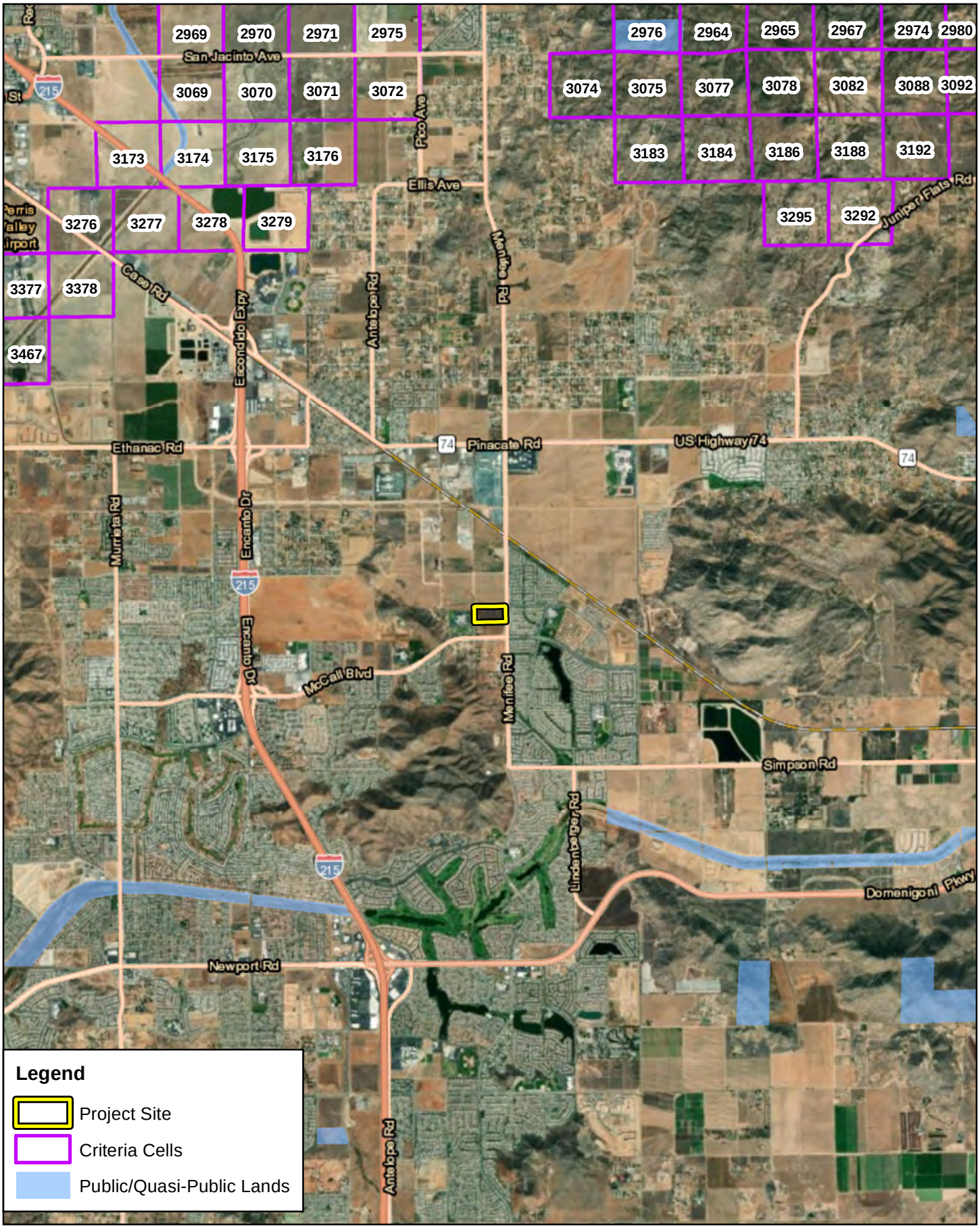
Exhibit 5



THE VILLAGE PROEJCT
HABITAT ASSESSMENT AND MSHCP CONSISTENCY ANALYSIS

Critical Habitat

Exhibit 6



THE VILLAGE PROJECT
HABITAT ASSESSMENT AND MSHCP CONSISTENCY ANALYSIS

MSHCP Criteria Area

ELMT CONSULTING

0 0.625 1.25 2.5 Miles

Source: ESRI Aerial Imagery,Western Riverside County MSHCP, Riverside County

Exhibit 7

Attachment B

Site Photographs



Photograph 1: From the northeast corner of the project site looking south along the eastern boundary.



Photograph 2: From the northeast corner of the project site looking west along the northern boundary.



Photograph 3: From the middle of the northern boundary looking south across the middle of the project site at the underground storm drain alignment extending through the middle of the sit.



Photograph 4: From the middle of the northern boundary of the project site looking southwest.



Photograph 5: From the northwest corner of the project site looking east along the northern boundary.



Photograph 6: From the northwest boundary of the project site looking south along the western boundary.



Photograph 7: From the southwest corner of the project site looking north along the western boundary.



Photograph 8: From the southwest corner of the project site looking east along the southern boundary.



Photograph 9: From the middle of the southern boundary looking north across the middle of the project site at the underground storm drain alignment extending through the middle of the site.



Photograph 10: From the southeast corner of the project site looking west along the southern boundary.



Photograph 11: From the southeast corner of the project site looking north along the eastern boundary.



Photograph 12: From the southeast corner of the project site looking northwest across the eastern portion of the site.



Photograph 13: Looking north across the western half of the project site from the southwest portion of the site.



Photograph 14: From the middle of the northern boundary of the project site looking north towards the off-site storm channel where it daylights from an underground channel to a trapezoidal channel off-site.

Attachment C

Potentially Occurring Special-Status Plant Species

Table C-1: Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	**Status**	**Habitat**	**Observed On-site**	**Potential to Occur**
SPECIAL-STATUS WILDLIFE SPECIES				
Accipiter cooperii Cooper's hawk	Fed: None CA: WL	Generally found in forested areas up to 3,000 feet in elevation, especially near edges and rivers. Prefers hardwood stands and mature forests, but can be found in urban and suburban areas where there are tall trees for nesting. Common in open areas during nesting season.	No	**Moderate**. The project site provides suitable foraging opportunities, but the project site does not provide suitable nesting opportunities. This species is adapted to urban environments and occurs commonly.
Accipiter striatus sharp-shinned hawk	Fed: None CA: WL	Found in pine, fir and aspen forests. They can be found hunting in forest interior and edges from sea level to near alpine areas. Can also be found in rural, suburban and agricultural areas, where they often hunt at bird feeders. Typically found in southern California in the winter months.	No	**Moderate**. The project site provides suitable foraging opportunities. This species does not nest in this region.
Aimophila ruficeps canescens southern California rufous-crowned sparrow	Fed: None CA: WL	Typically found between 3,000 and 6,000 feet in elevation. Breed in sparsely vegetated scrubland on hillsides and canyons. Prefers coastal sage scrub dominated by California sagebrush (*Artemisia californica*), but they can also be found breeding in coastal bluff scrub, low-growing serpentine chaparral, and along the edges of tall chaparral habitats.	No	**Presumed absent.** No suitable habitat is present on-site.
Ammodramus savannarum grasshopper sparrow	Fed: None CA: SSC	Occurs in grassland, upland meadow, pasture, hayfield, and old field habitats. Optimal habitat contains short- to medium-height bunch grasses interspersed with patches of bare ground, a shallow litter layer, scattered forbs, and few shrubs. May inhabit thickets, weedy lawns, vegetated landfills, fence rows, open fields, or grasslands.	No	**Presumed absent.** No suitable habitat is present on-site.
Aquila chrysaetos golden eagle	Fed: None CA: FP; WL	Occupies nearly all terrestrial habitats of the western states except densely forested areas. Favors secluded cliffs with overhanging ledges and large trees for nesting and cover. Hilly or mountainous country where takeoff and soaring are supported by updrafts is generally preferred to flat habitats. Deeply cut canyons rising to open mountain slopes and crags are ideal habitat.	No	**Presumed absent.** No suitable habitat is present on-site.

Scientific Name Common Name	**Status**	**Habitat**	**Observed On-site**	**Potential to Occur**
Ardea alba great egret	Fed: None CA: None	Yearlong resident throughout California, except for the high mountains and deserts. Feeds and rests in fresh, and saline emergent wetlands, along the margins of estuaries, lakes, and slow-moving streams, on mudflats and salt ponds, and in irrigated croplands and pastures.	No	**Low.** The project site provides suitable foraging opportunities, but does not provide suitable nesting opportunities.
Ardea herodias great blue heron	Fed: None CA: None	Forages along streams, marshes, lakes, and meadows. Nests colonially in tall trees (typically Eucalyptus sp.), on cliffsides, or in isolated spots in marshes.	No	**Presumed absent.** No suitable habitat is present on-site.
Arizona elegans occidentalis California glossy snake	Fed: None CA: SSC	Inhabits arid scrub, rocky washes, grasslands, and chaparral habitats.	No	**Presumed absent.** No suitable habitat is present on-site.
Artemisiospiza belli belli Bell's sparrow	Fed: None CA: WL	Generally prefers semi-open habitats with evenly spaced shrubs 1 – 2 meters in height. Dry chaparral and coastal sage scrub. Less common in tall dense, old chaparral.	No	**Presumed absent.** No suitable habitat is present on-site.
Aspidoscelis hyperythra orangethroat whiptail	Fed: None CA: SSC; WL	Semi-arid brushy areas typically with loose soil and rocks, including washes, streamsides, rocky hillsides, and coastal chaparral.	No	**Presumed absent**. No suitable habitat is present.
Aspidoscelis tigris stejnegeri coastal whiptail	Fed: None CA: SSC	Found in a variety of ecosystems, primarily hot and dry open areas with sparse foliage - chaparral, woodland, and riparian areas.	No	**Presumed absent**. No suitable habitat is present.
Athene cunicularia burrowing owl	Fed: None CA: SSC	Occurs in open, annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Dependent upon fossorial mammals for burrows, most notable ground squirrels.	No	**Low**. The project site provides marginal foraging and nesting habitat. Although heavily disturbed, the western portion of the site provides line-of-sight opportunities favored by burrowing owls; however, no suitable burrows (>4 inches in diameter) were observed on-site.
Baeolophus inornatus oak titmouse	Fed: None CA: None	Lives mostly in warm, open, dry oak or oak-pine woodlands. Restricted to southwest Oregon to northwest Baja California with another population in the Cape District of south Baja California.	No	**Presumed absent.** No suitable habitat is present on-site.
Bombus crotchii Crotch bumble bee	Fed: None CA: CE	Exclusive to coastal California east towards the Sierra-Cascade Crest; less common in western Nevada.	No	**Presumed absent.** No suitable habitat is present on-site.

Scientific Name Common Name	**Status**	**Habitat**	**Observed On-site**	**Potential to Occur**
Buteo regalis ferruginous hawk	Fed: None CA: WL	Occurs primarily in open grasslands and fields, but may be found in sagebrush flats, desert scrub, low foothills, or along the edges of pinyon-juniper woodland. Feeds primarily on small mammals and typically found in agricultural or open fields.	No	**Presumed absent.** No suitable habitat is present on-site.
Buteo swainsoni Swainson's hawk	Fed: None CA: **THR**	Typical habitat is open desert, grassland, or cropland containing scattered, large trees or small groves. Breeds in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah in the Central Valley. Forages in adjacent grassland or suitable grain or alfalfa fields or livestock pastures.	No	**Presumed absent.** No suitable habitat is present on-site.
Calypte costae Costa's hummingbird	Fed: None CA: None	Desert and semi-desert, arid brushy foothills and chaparral. A desert hummingbird that breeds in the Sonoran and Mojave Deserts. Departs desert heat moving into chaparral, scrub, and woodland habitats.	No	**Presumed absent**. No suitable habitat is present on-site.
Chaetodipus californicus femoralis Dulzura pocket mouse	Fed: None CA: SSC	Found most often in grass-chaparral edges but may also be found in coastal scrub or other habitats, primarily in San Diego County.	No	**Presumed absent.** No suitable habitat is present on-site.
Chaetodipus fallax fallax northwestern San Diego pocket mouse	Fed: None CA: SSC	Occurs in desert and coastal habitats in southern California, Mexico, and northern Baja California, from sea level to at least 1,400 meters. Found in a variety of temperate habitats ranging from chaparral and grasslands to scrub forests and deserts. Requires low growing vegetation or rocky outcroppings, as well as sandy soils for burrowing.	No	**Presumed absent.** No suitable habitat is present on-site.
Chaetura vauxi Vaux's swift	Fed:CA: None SSC	Prefers redwood and Douglas-fir habitats with nest-sites in large hallow trees and snags, especially tall, burned-out snags. Fairly common migrant throughout most of the state in April and May, and August and September.	No	**Presumed absent.** No suitable habitat is present on-site.
Circus hudsonius northern harrier	Fed: None CA: SSC	Frequents meadows, grasslands, open rangelands, desert sinks, fresh and saltwater emergent wetlands; seldom found in wooded areas. Mostly found in flat, or hummocky, open areas of tall, dense grasses moist or dry shrubs, and edges for nesting, cover, and feeding.	No	**Presumed absent**. No suitable habitat is present on-site.

Scientific Name Common Name	**Status**	**Habitat**	**Observed On-site**	**Potential to Occur**
Coleonyx variegatus abbotti San Diego banded gecko	Fed: None CA: SSC	Occurs in coastal and cismontane southern California from interior Ventura County south, although it is absent from the extreme outer coast. It is uncommon in coastal scrub and chaparral, most often occurring in granite or rocky outcrops in these habitats.	No	**Presumed absent.** No suitable habitat is present on-site.
Crotalus ruber red-diamond rattlesnake	Fed: None CA: SSC	It can be found from the desert, through dense chaparral in the foothills (it avoids the mountains above around 4,000 feet), to warm inland mesas and valleys, all the way to the cool ocean shore. It is most commonly associated with heavy brush with large rocks or boulders. Dense chaparral in the foothills, cactus or boulder associated coastal sage scrub, oak and pine woodlands, and desert slope scrub associations are known to carry populations of the northern red-diamond rattlesnake; however, chamise and red shank associations may offer better structural habitat for refuges and food resources for this species than other habitats.	No	**Presumed absent.** No suitable habitat is present on-site.
Dipodomys merriami parvus San Bernardino kangaroo rat	Fed: **END** CA: CE	Primarily found in Riversidian alluvial fan sage scrub and sandy loam soils, alluvial fans and flood plains, and along washes with nearby sage scrub. May occur at lower densities in Riversidian upland sage scrub, chaparral and grassland in uplands and tributaries in proximity to Riversidian alluvial fan sage scrub habitats. Tend to avoid rocky substrates and prefer sandy loam substrates for digging of shallow burrows.	No	**Presumed absent.** No suitable habitat is present on-site.
Dipodomys simulans Dulzura kangaroo rat	Fed: None CA: None	Relatively common in chaparral, coastal sage scrub, Riversidean alluvial fan sage scrub, and peninsular juniper woodland habitats.	No	**Presumed absent.** No suitable habitat is present on-site.
Dipodomys stephensi Stephens' kangaroo rat	Fed: **END** CA: **THR**	Occur in arid and semi-arid habitats with some grass or brush. Prefer open habitats with less than 50% protective cover. Require soft, well-drained substrate for building burrows and are typically found in areas with sandy soil.	No	**Presumed absent.** No suitable habitat is present on-site.
Elanus leucurus white-tailed kite	Fed: None CA: FP	Occurs in low elevation, open grasslands, savannah-like habitats, agricultural areas, wetlands, and oak woodlands. Uses trees with dense canopies for cover.	No	**Low**. The project site provides marginal foraging habitat. No suitable nesting opportunities on-site.

Scientific Name Common Name	**Status**	**Habitat**	**Observed On-site**	**Potential to Occur**
Empidonax traillii willow flycatcher	Fed: None CA: **END**	A rare to locally uncommon, summer resident in wet meadow and montane riparian habitats (2,000 to 8,000 ft) in the Sierra Nevada and Cascade Range. Most often occurs in broad, open river valleys or large mountain meadows with lush growth of shrubby willows.	No	**Presumed absent.** No suitable habitat is present on-site.
Eremophila alpestris actia California horned lark	Fed: None CA: WL	Generally found in shortgrass prairies, grasslands, disturbed fields, or similar habitat types along the coast or in deserts. Trees are shrubs are usually scarce or absent. Generally rare in montane, coniferous, or chaparral habitats. Forms large flocks outside of the breeding season.	No	**Low** The project site provides suitable foraging and minimal nesting habitat.
Eumops perotis californicus western mastiff bat	Fed: None CA: SSC	Primarily a cliff-dwelling species, roost generally under exfoliating rock slabs. Roosts are generally high above the ground, usually allowing a clear vertical drop of at least 3 meters below the entrance for flight. In California, it is most frequently encountered in broad open areas. Its foraging habitat includes dry desert washes, flood plains, chaparral, oak woodland, open ponderosa pine forest, grassland, and agricultural areas.	No	**Presumed absent.** No suitable habitat is present on-site.
Euphydryas editha quino Quino checkerspot butterfly	Fed: **END** CA: None	Range is now limited to a few populations in Riverside and San Diego counties. Common in meadows and upland sage scrub/chapparal habitat.	No	**Presumed absent.** No suitable habitat is present on-site.
Falco peregrinus anatum American peregrine falcon	Fed: DL CA: DL; FP	Uncommon winter resident of the inland region of southern California. Active nesting sites are known along the coast north of Santa Barbara, in the Sierra Nevada, and in other mountains of northern California. Breeds mostly in woodland, forest, and coastal habitats. Riparian areas and coastal and inland wetlands are important habitats yearlong, especially in nonbreeding seasons.	No	**Presumed absent.** No suitable habitat is present on-site.
Lanius ludovicianus loggerhead shrike	Fed: None CA: SSC	Often found in broken woodlands, shrublands, and other habitats. Prefers open country with scattered perches for hunting and fairly dense brush for nesting.	No	**Presumed absent.** No suitable habitat is present on-site.
Lasiurus xanthinus western yellow bat	Fed: None CA: SSC	Roosts in palm trees in foothill riparian, desert wash, and palm oasis habitats with access to water for foraging.	No	**Presumed absent.** No suitable habitat is present on-site.
Lepus californicus bennettii San Diego black-tailed jackrabbit	Fed: None CA: SSC	Occurs in diverse habitats, but primarily is found in arid regions supporting shortgrass habitats. Openness of open scrub habitat is preferred over dense chaparral.	No	**Presumed absent.** No suitable habitat is present on-site.

Scientific Name Common Name	**Status**	**Habitat**	**Observed On-site**	**Potential to Occur**
Neotoma lepida intermedia San Diego desert woodrat	Fed: None CA: SSC	Occurs in coastal scrub communities between San Luis Obispo and San Diego Counties. Prefers moderate to dense canopies, and especially rocky outcrops.	No	**Presumed absent.** No suitable habitat is present on-site.
Numenius americanus long-billed curlew	Fed: None CA: WL	Preferred winter habitats include large coastal estuaries, upland herbaceous areas, and croplands. On estuaries, feeding occurs mostly on intertidal mudflats.	No	**Presumed absent.** No suitable habitat is present on-site.
Nycticorax nycticorax black-crowned night heron	Fed: None CA: None	Fairly common, yearlong resident in lowlands and foothills throughout most of California, including the Salton Sea and Colorado River areas, and very common locally in large nesting colonies. Feeds along the margins of lacustrine, large riverine, and fresh and saline emergent habitats and rarely, on kelp beds in marine sub tidal habitats. Nests and roosts in dense-foliaged trees and dense emergent wetlands.	No	**Presumed absent.** No suitable habitat is present on-site.
Onychomys torridus ramona southern grasshopper mouse	Fed: None CA: SSC	Inhabits alkali desert scrub and other desert scrub habitats, and to a lesser extent succulent shrubs, desert washes, desert riparian, coastal scrub, mixed chaparral, and sagebrush habitats. Generally rare in valley foothill and montane riparian habitats. Prefers low to moderate shrub cover and requires friable soils.	No	**Presumed absent.** No suitable habitat is present on-site.
Perognathus longimembris brevinasus Los Angeles pocket mouse	Fed: None CA: SSC	Occurs in lower elevation grasslands and coastal sage scrub communities in and around the Los Angeles Basin. Prefers open ground with fine sandy soils. May not dig extensive burrows, but instead will seek refuge under weeds and dead leaves instead.	No	**Presumed absent.** No suitable habitat is present on-site.
Phrynosoma blainvillii coast horned lizard	Fed: None CA: SSC	Occurs in a wide variety of vegetation types including coastal sage scrub, annual grassland, chaparral, oak woodland, riparian woodland and coniferous forest. In inland areas, this species is restricted to areas with pockets of open microhabitat, created by disturbance (i.e. fire, floods, roads, grazing, fire breaks). The key elements of such habitats are loose, fine soils with a high sand fraction; an abundance of native ants or other insects; and open areas with limited overstory for basking and low, but relatively dense shrubs for refuge.	No	**Presumed absent.** No suitable habitat is present on-site.

Scientific Name Common Name	**Status**	**Habitat**	**Observed On-site**	**Potential to Occur**
Plegadis chihi white-faced ibis	Fed: None CA: WL	Prefers to feed in fresh emergent wetland, shallow lacustrine waters, muddy ground of wet meadows, and irrigated or flooded partures and croplands. Nests in dense, fresh emergent wetland.	No	**Presumed absent.** No suitable habitat is present on-site.
Polioptila californica californica coastal California gnatcatcher	Fed: **THR** CA: SSC	Obligate resident of sage scrub habitats that are dominated by California sagebrush (*Artemisia californica*). This species generally occurs below 750 feet elevation in coastal regions and below 1,500 feet inland. Ranges from the Ventura County, south to San Diego County and northern Baja California and it is less common in sage scrub with a high percentage of tall shrubs. Prefers habitat with more low-growing vegetation.	No	**Presumed absent.** No suitable habitat is present on-site.
Setophaga petechia yellow warbler	Fed: None CA: SSC	Nests over all of California except the Central Valley, the Mojave Desert region, and high altitudes and the eastern side of the Sierra Nevada. Winters along the Colorado River and in parts of Imperial and Riverside Counties. Nests in riparian areas dominated by willows, cottonwoods, sycamores, or alders or in mature chaparral. May also use oaks, conifers, and urban areas near stream courses.	No	**Presumed absent.** No suitable habitat is present on-site.
Spea hammondii western spadefoot	Fed: None CA: SSC	Prefers open areas with sandy or gravelly soils, in a variety of habitats including mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washed, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Rainpools which do not contain bullfrogs, fish, or crayfish are necessary for breeding.	No	**Presumed absent.** No suitable habitat is present on-site.
Spinus lawrencei Lawrence's goldfinch	Fed: None CA: None	Open woodlands, chaparral, and weedy fields. Closely associated with oaks. Nests in open oak or other arid woodland and chaparral near water.	No	**Presumed absent.** No suitable habitat is present on-site.
Streptocephalus woottoni Riverside fairy shrimp	Fed: **END** CA: None	Freshwater crustacean that is found in vernal pools in the coastal California area.	No	**Presumed absent.** No suitable habitat is present on-site.

Scientific Name Common Name	**Status**	**Habitat**	**Observed On-site**	**Potential to Occur**
Vireo bellii pusillus least Bell's vireo	Fed: **END** CA: **END**	Primarily occupy Riverine riparian habitat that typically feature dense cover within 1 -2 meters of the ground and a dense, stratified canopy. Typically it is associated with southern willow scrub, cottonwood-willow forest, mule fat scrub, sycamore alluvial woodlands, coast live oak riparian forest, arroyo willow riparian forest, or mesquite in desert localities. It uses habitat which is limited to the immediate vicinity of water courses, 2,000 feet elevation in the interior.	No	**Presumed absent.** No suitable habitat is present on-site.
SPECIAL-STATUS PLANT SPECIES				
Allium munzii Munz's onion	Fed: **END** CA: **THR** CNPS: 1B.1	Found in chaparral, cismontane woodland, coastal scrub, pinyon and juniper woodland, valley and foothill grassland. Found at elevations ranging from 974 to 3,510 feet. Blooming period is from March to May.	No	**Presumed absent**. No suitable habitat is present on-site.
Brodiaea filifolia thread-leaved brodiaea	Fed: **END** CA: **THR** CNPS: 1B.1	Grows in chaparral openings, cismontane woodland, coastal scrub, playas, valley and foothill grassland, and vernal pools, often in clay soils. Found at elevations ranging from 82 to 3,675 feet. Blooming period is from March to June.	No	**Presumed absent**. No suitable habitat is present on-site.
Caulanthus simulans Payson's jewelflower	Fed: None CA: None CNPS: 4.2	Occurs on granitic sandy soils in chaparral and coastal scrub habitats. Found at elevations ranging from 295 to 7,218 feet. Blooming period is from February to June.	No	**Presumed absent**. No suitable habitat is present on-site.
Centromadia pungens ssp. laevis smooth tarplant	Fed: None CA: None CNPS: 1B.1	Found in alkaline soils within chenopod scrub, meadows and seeps, playas, riparian woodland, valley and foothill grassland habitats. Found at elevations ranging from 0 to 2,100 feet. Blooming period is from April to September.	No	**Presumed absent**. No suitable habitat is present on-site.
Chorizanthe leptotheca Peninsular spineflower	Fed: None CA: None CNPS: 4.2	Found in granitic soils within chaparral, coast scrub, and lower montane coniferous forest habitats. Found at elevations ranging from 984 to 6,234 feet. Blooming period is from May to August.	No	**Presumed absent**. No suitable habitat is present on-site.
Chorizanthe parryi* var. *parryi Parry's spineflower	Fed: None CA: None CNPS: 1B.1	Occurs on sandy and/or rocky soils in chaparral, coastal sage scrub, and sandy openings within alluvial washes and margins. Found at elevations ranging from 951 to 3,773 feet. Blooming period is from April to June.	No	**Presumed absent**. No suitable habitat is present on-site.

Scientific Name Common Name	**Status**	**Habitat**	**Observed On-site**	**Potential to Occur**
Chorizanthe polygonoides var. longispina long-spined spineflower	Fed: None CA: None CNPS: 1B.2	Typically found on clay lenses which are largely devoid of shrubs. Can be found on the periphery of vernal pool habitat and even on the periphery of montane meadows near vernal seeps. Found at elevations ranging from 98 to 5,020 feet. Blooming period is from April to July.	No	**Presumed absent**. No suitable habitat is present on-site.
Convolvulus simulans small-flowered morning-glory	Fed: None CA: None CNPS: 4.2	Grows in clay soils within serpentinite seeps, chaparral, coastal scrub, valley and foothill grassland habitats. Found at elevations ranging from 98 to 2,297 feet. Blooming period is from March to July.	No	**Presumed absent**. No suitable habitat is present on-site.
Deinandra paniculata paniculate tarplant	Fed: None CA: None CNPS: 4.2	Typically found in vernally mesic, sometimes sandy soils in coastal scrub, valley and foothill grasslands, and vernal pools. Found at elevations ranging from 82 to 3,084 feet. Blooming period is from April to November.	No	**Presumed absent**. No suitable habitat is present on-site.
Harpagonella palmeri Palmer's grapplinghook	Fed: None CA: None CNPS: 4.2	Occurs on clay soils in chaparral, coastal scrub, and valley and foothill grasslands. Found at elevations ranging from 66 to 3,133 feet. Blooming period is from March to May.	No	**Presumed absent**. No suitable habitat is present on-site.
Juglans californica southern California black walnut	Fed: None CA: None CNPS: 4.2	Found in chaparral, cismontane woodland, coastal scrub, and riparian woodland habitats. Found at elevations ranging from 164 to 2,953 feet. Blooming period is from March to August.	No	**Presumed absent**. No suitable habitat is present on-site.
Lasthenia glabrata* ssp. *coulteri Coulter's goldfields	Fed: None CA: None CNPS: 1B.1	Prefers playas, vernal pools, and coastal salt marshes and swamps. Found at elevations ranging from 3 to 4,003 feet. Blooming period is from February to June.	No	**Presumed absent**. No suitable habitat is present on-site.
Lepidium virginicum var. robinsonii Robinson's pepper-grass	Fed: None CA: None CNPS: 4.3	Dry soils on chaparral and coastal sage scrub. Found at elevations ranging from 3 to 2,904 feet. Blooming period is from January to July.	No	**Presumed absent**. No suitable habitat is present on-site.
Microseris douglasii* ssp. *platycarpha small-flowered microseris	Fed: None CA: None CNPS: 4.2	Occurs in clay soils in cismontane woodland, coastal scrub, valley and foothill grasslands, and around vernal pools. Found at elevations ranging from 49 to 3,510 feet. Blooming period is from March to May.	No	**Presumed absent**. No suitable habitat is present on-site.
Myosurus minimus ssp. apus little mousetail	Fed: None CA: None CNPS: 3.1	Occurs in alkaline soils in valley and foothill grassland and vernal pools. Found at elevations ranging from 66 to 2,100 feet. Blooming period is from March to June.	No	**Presumed absent**. No suitable habitat is present on-site.

Scientific Name Common Name	**Status**	**Habitat**	**Observed On-site**	**Potential to Occur**
Navarretia fossalis spreading navarretia	Fed: **THR** CA: None CNPS: 1B.1	Grows in chenopod scrub, assorted shallow freshwater marshes and swamps, playas, and vernal pools. Found at elevations ranging from 98 to 2,149 feet. Blooming period is from April to June.	No	**Presumed absent**. No suitable habitat is present on-site.
Orcuttia californica California Orcutt grass	Fed: **END** CA: **END** CNPS: 1B.1	Primarily restricted to the southern basaltic claypan vernal pools at the Santa Rosa Plateau, and alkali vernal pools at Skunk Hollow, and at Salt Creek. Grows in elevations ranging from 45 to 2,165 feet above msl. Blooming period is from April to August.	No	**Presumed absent**. No suitable habitat is present on-site.
CDFW SENSITIVE HABITATS				
Southern Coast Live Oak Riparian Forest	CDFW Sensitive Habitat	Open to locally dense evergreen riparian woodlands dominated by *Quercus agrifolia*. This type appears to be richer in herbs and poorer in understory shrubs than other riparian communities. Bottomlands and outer floodplains along larger streams, on fine-grained, rich alluvium. Canyons and valleys of coastal southern California.	No	**Absent**
Southern Cottonwood Willow Riparian Forest	CDFW Sensitive Habitat	Dominated by cottonwood (*Populus* ssp.) and willow (*Salix* ssp.) trees and shrubs. Considered to be an early successional stage as both species are known to germinate almost exclusively on recently deposited or exposed alluvial soils.	No	**Absent**

U.S. Fish and Wildlife Service (Fed) - Federal
END- Federal Endangered
THR- Federal Threatened

California Department of Fish and Wildlife (CA) - California
END- California Endangered
THR- California Threatened
Candidate- Candidate for listing under the California Endangered Species Act
FP- California Fully Protected
SSC- Species of Special Concern
WL- Watch List

California Native Plant Society (CNPS)
California Rare Plant Rank
1B Plants Rare, Threatened, or Endangered in California and Elsewhere
2B Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
3 Plants About Which More Information is Needed – A Review List
4 Plants of Limited Distribution – A Watch List

CNPS Threat Ranks
0.1- Seriously threatened in California
0.2- Moderately threatened in California
0.3- Not very threatened in California

Attachment D

Regulations

Special status species are native species that have been afforded special legal or management protection because of concern for their continued existence. There are several categories of protection at both federal and state levels, depending on the magnitude of threat to continued existence and existing knowledge of population levels.

Federal Regulations

Endangered Species Act of 1973

Federally listed threatened and endangered species and their habitats are protected under provisions of the Federal Endangered Species Act (ESA). Section 9 of the ESA prohibits "take" of threatened or endangered species. "Take" under the ESA is defined as to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any of the specifically enumerated conduct." The presence of any federally threatened or endangered species that are in a project area generally imposes severe constraints on development, particularly if development would result in "take" of the species or its habitat. Under the regulations of the ESA, the United States Fish and Wildlife Service (USFWS) may authorize "take" when it is incidental to, but not the purpose of, an otherwise lawful act.

Critical Habitat is designated for the survival and recovery of species listed as threatened or endangered under the ESA. Critical Habitat includes those areas occupied by the species, in which are found physical and biological features that are essential to the conservation of an ESA listed species and which may require special management considerations or protection. Critical Habitat may also include unoccupied habitat if it is determined that the unoccupied habitat is essential for the conservation of the species.

Whenever federal agencies authorize, fund, or carry out actions that may adversely modify or destroy Critical Habitat, they must consult with USFWS under Section 7 of the ESA. The designation of Critical Habitat does not affect private landowners, unless a project they are proposing uses federal funds, or requires federal authorization or permits (e.g., funding from the Federal Highway Administration or a permit from the U.S. Army Corps of Engineers (Corps)).

If USFWS determines that Critical Habitat will be adversely modified or destroyed from a proposed action, the USFWS will develop reasonable and prudent alternatives in cooperation with the federal institution to ensure the purpose of the proposed action can be achieved without loss of Critical Habitat. If the action is not likely to adversely modify or destroy Critical Habitat, USFWS will include a statement in its biological opinion concerning any incidental take that may be authorized and specify terms and conditions to ensure the agency is in compliance with the opinion.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 U.S. Government Code [USC] 703) makes it unlawful to pursue, capture, kill, possess, or attempt to do the same to any migratory bird or part, nest, or egg of any such bird listed in wildlife protection treaties between the United States, Great Britain, Mexico, Japan, and the countries of the former Soviet Union, and authorizes the U.S. Secretary of the Interior to protect and regulate the taking of migratory birds. It establishes seasons and bag limits for hunted species and protects migratory birds, their occupied nests, and their eggs (16 USC 703; 50 CFR 10, 21).

The MBTA covers the taking of any nests or eggs of migratory birds, except as allowed by permit pursuant to 50 CFR, Part 21. Disturbances causing nest abandonment and/or loss of reproductive effort (i.e., killing or abandonment of eggs or young) may also be considered "take." This regulation seeks to protect migratory birds and active nests.

In 1972, the MBTA was amended to include protection for migratory birds of prey (e.g., raptors). Six families of raptors occurring in North America were included in the amendment: Accipitridae (kites, hawks, and eagles); Cathartidae (New World vultures); Falconidae (falcons and caracaras); Pandionidae (ospreys); Strigidae (typical owls); and Tytonidae (barn owls). The provisions of the 1972 amendment to the MBTA protects all species and subspecies of the families listed above. The MBTA protects over 800 species including geese, ducks, shorebirds, raptors, songbirds and many relatively common species.

State Regulations

California Environmental Quality Act (CEQA)

The California Environmental Quality Act (CEQA) provides for the protection of the environment within the State of California by establishing State policy to prevent significant, avoidable damage to the environment through the use of alternatives or mitigation measures for projects. It applies to actions directly undertaken, financed, or permitted by State lead agencies. If a project is determined to be subject to CEQA, the lead agency will be required to conduct an Initial Study (IS); if the IS determines that the project may have significant impacts on the environment, the lead agency will subsequently be required to write an Environmental Impact Report (EIR). A finding of non-significant effects will require either a Negative Declaration or a Mitigated Negative Declaration instead of an EIR. Section 15380 of the CEQA Guidelines independently defines "endangered" and "rare" species separately from the definitions of the California Endangered Species Act (CESA). Under CEQA, "endangered" species of plants or animals are defined as those whose survival and reproduction in the wild are in immediate jeopardy, while "rare" species are defined as those who are in such low numbers that they could become endangered if their environment worsens.

California Endangered Species Act (CESA)

In addition to federal laws, the state of California implements the CESA which is enforced by CDFW. The CESA program maintains a separate listing of species beyond the FESA, although the provisions of each act are similar.

State-listed threatened and endangered species are protected under provisions of the CESA. Activities that may result in "take" of individuals (defined in CESA as; "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill") are regulated by CDFW. Habitat degradation or modification is not included in the definition of "take" under CESA. Nonetheless, CDFW has interpreted "take" to include the destruction of nesting, denning, or foraging habitat necessary to maintain a viable breeding population of protected species.

The State of California considers an endangered species as one whose prospects of survival and reproduction are in immediate jeopardy. A threatened species is considered as one present in such small numbers throughout its range that it is likely to become an endangered species in the near future in the

absence of special protection or management. A rare species is one that is considered present in such small numbers throughout its range that it may become endangered if its present environment worsens. State threatened and endangered species are fully protected against take, as defined above.

The CDFW has also produced a species of special concern list to serve as a species watch list. Species on this list are either of limited distribution or their habitats have been reduced substantially, such that a threat to their populations may be imminent. Species of special concern may receive special attention during environmental review, but they do not have formal statutory protection. At the federal level, USFWS also uses the label species of concern, as an informal term that refers to species which might be in need of concentrated conservation actions. As the Species of Concern designated by USFWS do not receive formal legal protection, the use of the term does not necessarily ensure that the species will be proposed for listing as a threatened or endangered species.

Fish and Game Code

Fish and Game Code Sections 3503, 3503.5, 3511, and 3513 are applicable to natural resource management. For example, Section 3503 of the Code makes it unlawful to destroy any birds' nest or any birds' eggs that are protected under the MBTA. Further, any birds in the orders Falconiformes or Strigiformes (Birds of Prey, such as hawks, eagles, and owls) are protected under Section 3503.5 of the Fish and Game Code which makes it unlawful to take, possess, or destroy their nest or eggs. A consultation with CDFW may be required prior to the removal of any bird of prey nest that may occur on a project site. Section 3511 of the Fish and Game Code lists fully protected bird species, where the CDFW is unable to authorize the issuance of permits or licenses to take these species. Pertinent species that are State fully protected by the State include golden eagle (*Aquila chrysaetos*) and white-tailed kite (*Elanus leucurus*). Section 3513 of the Fish and Game Code makes it unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA.

Native Plant Protection Act

Sections 1900–1913 of the Fish and Game Code were developed to preserve, protect, and enhance Rare and Endangered plants in the state of California. The act requires all state agencies to use their authority to carry out programs to conserve Endangered and Rare native plants. Provisions of the Native Plant Protection Act prohibit the taking of listed plants from the wild and require notification of the CDFW at least ten days in advance of any change in land use which would adversely impact listed plants. This allows the CDFW to salvage listed plant species that would otherwise be destroyed.

California Native Plant Society Rare and Endangered Plant Species

Vascular plants listed as rare or endangered by the CNPS, but which have no designated status under FESA or CESA are defined as follows:

California Rare Plant Rank

1A- Plants Presumed Extirpated in California and either Rare or Extinct Elsewhere

1B- Plants Rare, Threatened, or Endangered in California and Elsewhere

2A- Plants Presumed Extirpated in California, But More Common Elsewhere

2B- Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere

3- Plants about Which More Information is Needed - A Review List

4- Plants of Limited Distribution - A Watch List

Threat Ranks

.1- Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)

.2- Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)

.3- Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known).

Local Policies

Western Riverside County MSHCP

The MSHCP is a comprehensive, multi-jurisdictional HCP focusing on conservation of species and their associated habitats in western Riverside County. The goal of the MSHCP is to maintain biological and ecological diversity within a rapidly urbanizing region.

The approval of the MSHCP and execution of the Implementing Agreement (IA) by the wildlife agencies allows signatories of the IA to issue "take" authorizations for all species covered by the MSHCP, including state- and federal-listed species as well as other identified sensitive species and/or their habitats. Each city or local jurisdiction will impose a Development Mitigation Fee for projects within their jurisdiction. With payment of the mitigation fee to the County and compliance with the survey requirements of the MSHCP where required, full mitigation in compliance with the California Environmental Quality Act (CEQA), National Environmental Policy Act (NEPA), CESA, and FESA will be granted. The Development Mitigation Fee varies according to project size and project description. The fee for residential development ranges from approximately $800 per unit to $1,600 per unit depending on development density (County Ordinance 810.2). Payment of the mitigation fee and compliance with the requirements of Section 6.0 of the MSHCP are intended to provide full mitigation under CEQA, NEPA, CESA, and FESA for impacts to the species and habitats covered by the MSHCP pursuant to agreements with the USFWS, the CDFW, and/or any other appropriate participating regulatory agencies and as set forth in the IA for the MSHCP.

There are three key agencies that regulate activities within inland streams, wetlands, and riparian areas in California. The Corps Regulatory Branch regulates activities pursuant to Section 404 of the Federal Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act. Of the State agencies, the CDFG regulates activities under the Fish and Game Code Section 1600-1616, and the Regional Board regulates activities pursuant to Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act.

Federal Regulations

Section 404 of the Clean Water Act

Since 1972, the Corps and U.S. Environmental Protection Agency (EPA) have jointly regulated the filling of "waters of the U.S.," including wetlands, pursuant to Section 404 of the Clean Water Act (CWA). The Corps has regulatory authority over the discharge of dredged or fill material into the waters of the United States under Section 404 of the CWA. The Corps and EPA define "fill material" to include any "material placed in waters of the United States where the material has the effect of: (i) replacing any portion of a water of the United States with dry land; or (ii) changing the bottom elevation of any portion of the waters of the United States." Examples include, but are not limited to, sand, rock, clay, construction debris, wood chips, and "materials used to create any structure or infrastructure in the waters of the United States." In order to further define the scope of waters protected under the CWA, the Corps and EPA published the Clean Water Rule on June 29, 2015. Pursuant to the Clean Water Rule, the term "*waters of the United States*" is defined as follows:

(i) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide.

(ii) All interstate waters, including interstate wetlands[1].

(iii) The territorial seas.

(iv) All impoundments of waters otherwise defined as waters of the United States under the definition.

(v) All tributaries[2] of waters identified in paragraphs (i) through (iii) mentioned above.

(vi) All waters adjacent[3] to a water identified in paragraphs (i) through (v) mentioned above, including wetlands, ponds, lakes, oxbows, impoundments, and similar waters.

---

1 The term *wetlands* means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

2 The terms *tributary* and *tributaries* each mean a water that contributes flow, either directly or through another water (including an impoundment identified in paragraph (iv) mentioned above), to a water identified in paragraphs (i) through (iii) mentioned above, that is characterized by the presence of the physical indicators of a bed and banks and an ordinary high water mark.

3 The term *adjacent* means bordering, contiguous, or neighboring a water identified in paragraphs (i) through (v) mentioned above, including waters separated by constructed dikes or barriers, natural river berms, beach dunes, and the like.

(vii) All prairie potholes, Carolina bays and Delmarva bays, Pocosins, western vernals pools, Texas coastal prairie wetlands, where they are determined, on a case-specific basis, to have a significant nexus to a water identified in paragraphs (i) through (iii) meantioned above.

(viii) All waters located within the 100-year floodplain of a water identified in paragraphs (i) through (iii) mentioned above and all waters located within 4,000 feet of the high tide line or ordinary high water mark of a water identified in paragraphs (i) through (v) mentioned above, where they are determined on a case-specific basis to have a significant nexus to a waters identified in paragraphs (i) through (iii) mentioned above.

The following features are not defined as "waters of the United States" even when they meet the terms of paragraphs (iv) through (viii) mentioned above:

(i) Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the Clean Water Act.

(ii) Prior converted cropland.

(iii) The following ditches:

(A) Ditches with ephemeral flow that are not a relocated tributary or excavated in a tributary.
(B) Ditches with intermittent flow that are not a relocated tributary, excavated in a tributary, or drain wetlands.
(C) Ditches that do not flow, either directly or through another water, into a water of the United States as identified in paragraphs (i) through (iii) of the previous section.

(iv) The following features:

(A) Artificially irrigated areas that would revert to dry land should application of water to that area cease;
(B) Artificial, constructed lakes and ponds created in dry land such as farm and stock watering ponds, irrigation ponds, settling basins, fields flooded for rice growing, log cleaning ponds, or cooling ponds;
(C) Artificial reflecting pools or swimming pools created in dry land;
(D) Small ornamental waters created in dry land;
(E) Water-filled depressions created in dry land incidental to mining or construction activity, including pits excavated for obtaining fill, sand, or gravel that fill with water;
(F) Erosional features, including gullies, rills, and other ephemeral features that do not meet the definition of a tributary, non-wetland swales, and lawfully constructed grassed waterways; and
(G) Puddles.

(v) Groundwater, including groundwater drained through subsurface drainage systems.

(vi) Stormwater control features constructed to convey, treat, or store stormwater that are created in dry land.

(vii) Wastewater recycling structures constructed in dry land; detention and retention basins built for wastewater recycling; groundwater recharge basins; percolation ponds built for wastewater recycling; and water distributary structures built for wastewater recycling.

Section 401 of the Clean Water Act

Pursuant to Section 401 of the CWA, any applicant for a federal license or permit to conduct any activity which may result in any discharge to waters of the United States must provide certification from the State or Indian tribe in which the discharge originates. This certification provides for the protection of the physical, chemical, and biological integrity of waters, addresses impacts to water quality that may result from issuance of federal permits, and helps insure that federal actions will not violate water quality standards of the State or Indian tribe. In California, there are nine Regional Water Quality Control Boards (Regional Board) that issue or deny certification for discharges to waters of the United States and waters of the State, including wetlands, within their geographical jurisdiction. The State Water Resources Control Board assumed this responsibility when a project has the potential to result in the discharge to waters within multiple Regional Boards.

State Regulations

Fish and Game Code

Fish and Game Code Sections 1600 et. seq. establishes a fee-based process to ensure that projects conducted in and around lakes, rivers, or streams do not adversely impact fish and wildlife resources, or, when adverse impacts cannot be avoided, ensures that adequate mitigation and/or compensation is provided.

Fish and Game Code Section 1602 requires any person, state, or local governmental agency or public utility to notify the CDFW before beginning any activity that will do one or more of the following:

(1) substantially obstruct or divert the natural flow of a river, stream, or lake;
(2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake; or
(3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake.

Fish and Game Code Section 1602 applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the State. CDFW's regulatory authority extends to include riparian habitat (including wetlands) supported by a river, stream, or lake regardless of the presence or absence of hydric soils and saturated soil conditions. Generally, the CDFW takes jurisdiction to the top of bank of the stream or to the outer limit of the adjacent riparian vegetation (outer drip line), whichever is greater. Notification is generally required for any project that will take place in or in the vicinity of a river, stream, lake, or their tributaries. This includes rivers or streams that flow at least periodically or permanently through a bed or channel with banks that support fish or other aquatic life and watercourses having a surface or subsurface flow that support or have supported riparian vegetation. A Section 1602 Streambed Alteration Agreement would be required if impacts to identified CDFW jurisdictional areas occur.

Porter Cologne Act

The California *Porter-Cologne Water Quality Control Act* gives the State very broad authority to regulate waters of the State, which are defined as any surface water or groundwater, including saline waters. The Porter-Cologne Act has become an important tool in the post SWANCC and Rapanos regulatory environment, with respect to the state's authority over isolated and insignificant waters. Generally, any person proposing to discharge waste into a water body that could affect its water quality must file a Report of Waste Discharge in the event that there is no Section 404/401 nexus. Although "waste" is partially defined as any waste substance associated with human habitation, the Regional Board also interprets this to include fill discharged into water bodies.

CRM TECH
1016 E. Cooley Drive, Suite A/B
Colton, CA 92324

September 30, 202

Kent Norton
MIG, Inc.
1650 Spruce Street, Suite 102
Riverside, CA 92507

Re: Update to Historical/Archaeological Resources Survey
The Village at Junipero Project; APN 333-070-018, -019, and -053
City of Menifee, Riverside County, California
Plot Plan No. 22-0030; CRM TECH Contract No. 3894

Dear Mr. Norton:

At your request, CRM TECH has completed a cultural resources study on approximately 20 acres of vacant land in the City of Menifee, Riverside County, California. The subject property of the study consists of Assessor's Parcel Numbers 333-070-018, -019, and -053, located on the south side of Heritage Lake Drive between Junipero Road and Menifee Road, in the northeast quarter of Section 23, Township 5 South Range 3 West, San Bernardino Baseline and Meridian, as depicted in the United States Geological Survey Romoland, California, 7.5' quadrangle (Figs. 1, 2).

The study is part of the environmental review process for the proposed Village at Junipero Project, which entails primarily the construction of approximately 240 residential units in 24 buildings, along with associated administrative and recreational facilities, parking lots, landscaping, and infrastructure improvements. The City of Menifee, as the lead agency for the project, required the study in compliance with the California Environmental Quality Act (CEQA). The purpose of the study is to provide the City with the necessary information and analysis to determine whether the project would cause a substantial adverse change to any "historical resources," as defined by CEQA, that may exist in the project area.

Background

As you know, the project area was previously the subject of a standard Phase I cultural resources survey that CRM TECH conducted in 2014-2015 (Tang et al. 2015; see attachment). The scope of that study included a historical/archaeological resources records search, historical background research, Native American consultation, and an intensive-level field survey. During the field survey, a prehistoric isolate consisting of a single obsidian flake was found in a fallow agricultural field near the western project boundary and subsequently designated 33-024087 in the California Historical Resources Inventory. By definition, the isolate did not qualify as an archaeological site due to the lack of contextual integrity and was not considered a potential "historical resource" (*ibid.*:13). Since no other cultural resources were encountered, the 2014-2015 study concluded that no "historical resources" were present within or adjacent to the project area (*ibid.*).

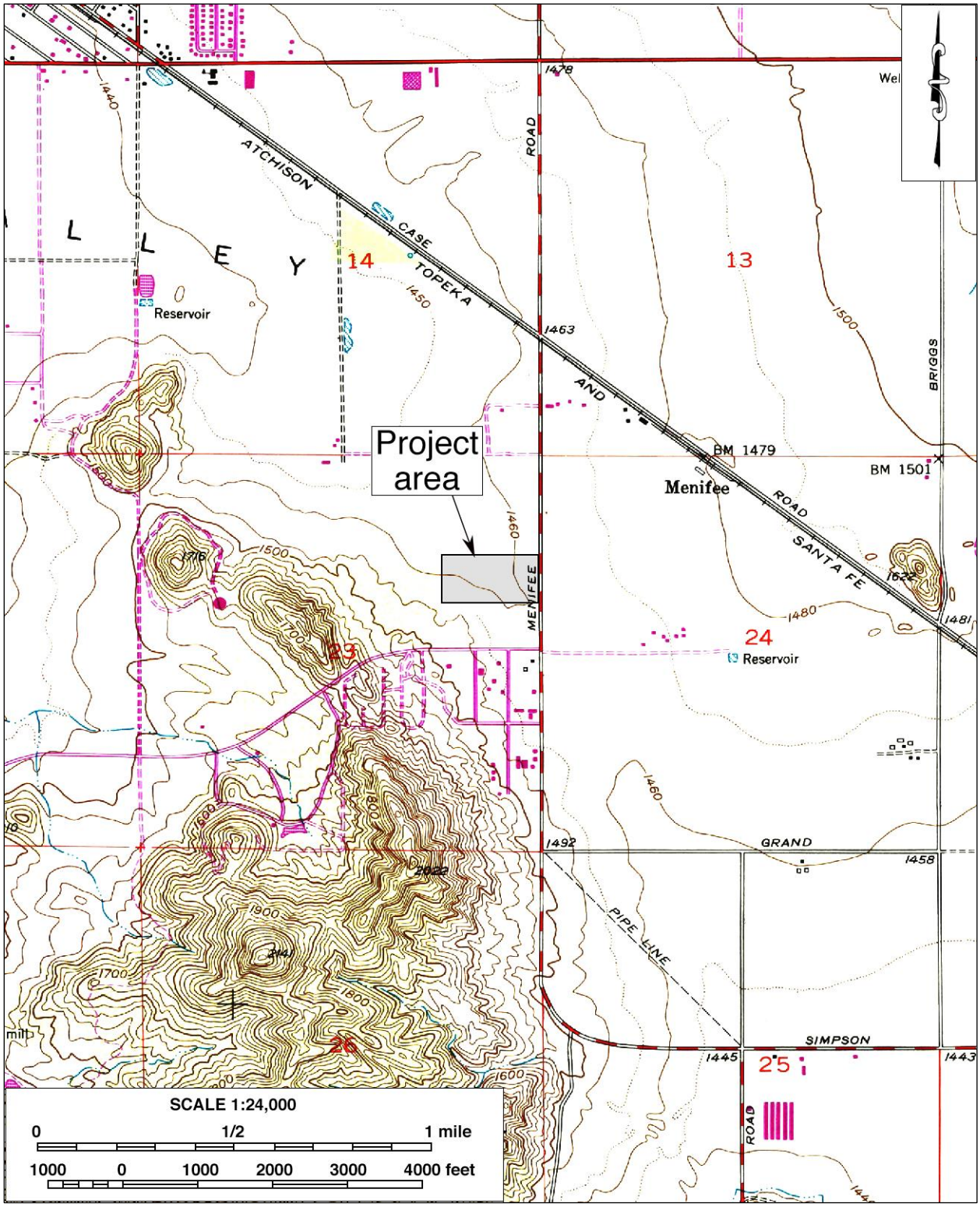


Figure 1. Location and configuration of the project area. (Based on USGS Romoland, Calif., 7.5' quadrangle, 1979 edition)



Figure 2. Recent satellite image of the project area.

Because the 2014-2015 study is now seven years old, the present study was designed and implemented to update and reexamine its findings and conclusions. Research procedures completed during this study include a review of data gathered during the 2014-2015 study and a reconnaissance-level field inspection of the project area. Finding from the field inspection and the final conclusion of the study are presented in the sections below.

Field Inspection of the Project Area

The field inspection was carried out on June 2, 2022, by CRM TECH archaeologist Daniel Ballester, M.S., who also conducted the intensive-level field survey of the project area in 2014 (Tang et al. 2015:9). The survey was completed at a reconnaissance level by walking a series of parallel north-south transects spaced 30 meters (approximately 90 feet) apart. Ground visibility ranged from poor (25%) to fair (70%) in most of the project area due to scattered vegetation growth but was good (80%) to excellent (>90%) in previously disturbed areas where the vegetation had been removed (Fig. 3), especially in the western portion of the property (Fig. 2).

The field inspection did not re-locate Isolate 33-024087, nor were any other historical/archaeological resources encountered. The ground surface in the project area has received extensive further



Figure 3. Overview of the current condition of the project area. (Photograph taken on June 2, 2022; view to the northeast)

disturbance since 2019 (Google Earth 2019-2022; Fig. 2). In particular, the western portion of the property, including the former location of the isolate, is currently used as a staging area for an adjacent residential development and is occupied by stockpiles of imported soil (Fig. 3).

Conclusion and Recommendations

In summary, the results of the recent field inspection confirmed the 2014-2015 finding that no "historical resources" are known to be present within or adjacent to the project area. Accordingly, CRM TECH presents the following recommendations to the City of Menifee:

- The proposed Village at Junipero Project will not cause a "substantial adverse change" to any known "historical resources," pursuant to PRC §21084.1.
- No further cultural resources investigation will be necessary for the project unless development plans undergo such changes as to include areas not covered by this study.
- If buried cultural materials are discovered during any earth-moving operations associated with the project, all work in that area should be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the finds.

Thank you for this opportunity to be of service. Should you have any questions or need additional information, please feel free to contact our office.

Sincerely,

Bai "Tom" Tang, M.A.
Principal, CRM TECH

References Cited

Google Earth
2019-2022 Aerial photographs of the project vicinity; taken in 2019, 2020, 2021, and 2022. Available through the Google Earth software.

Tang, Bai "Tom," Michael Hogan, and Deirdre Encarnación
2015 Historical/Archaeological Resources Survey: The Village at Menifee, City of Menifee, Riverside County, California. On file, Eastern Information Center, University of California, Riverside. (See attachment)

ATTACHMENT

2014-2015 CULTURAL RESOURCES SURVEY

PHASE I CULTURAL RESOURCES ASSESSMENT:

THE VILLAGE AT MENIFEE

City of Menifee
Riverside County, California

Prepared on behalf of:

Don Carruth, North Bayport Industrial Park II, Inc.
2780 Skypark Drive, Suite 410, Torrance, CA 90505
(310) 326-2530

Prepared for:

City of Menifee
Community Development Department, Planning Division
29714 Haun Road, Menifee, CA 92586
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Prepared by:

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Deirdre Encarnación, Archaeologist/Report Writer
CRM TECH
1016 East Cooley Drive, Suite A/B, Colton, CA 92324
(909) 824-6400

March 4, 2015
(Fieldwork completed on December 5, 2014)

CRM TECH Project No. 2875
Approximately 20 acres; USGS Romoland, Calif., 7.5' quadrangle
Section 23, T5S R3W, San Bernardino Baseline and Meridian
Assessor's Parcel Nos. 333-070-018, -019 and -053
Keywords: Perris/Menifee Valley; prehistoric isolate 33-024087 (lithic flake); no "historical resources" under CEQA

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MANAGEMENT SUMMARY

Between November 2014 and January 2015, at the request of North Bayport Industrial Park II, Inc., CRM TECH performed a Phase I cultural resources study on approximately 20 acres of vacant land in the City of Menifee, Riverside County, California. The subject property of the study consists of Assessor's Parcel Nos. 333-070-018, -019 and -053, located between Junipero Road and Menifee Road and to the north of McCall Boulevard, within the northeast quarter of Section 23, T5S R3W, San Bernardino Baseline and Meridian. The study is a part of the environmental review process for a proposed residential development project known as The Village at Menifee. The City of Menifee, as the lead agency for the project, required the study in compliance with the California Environmental Quality Act (CEQA).

As currently proposed, the project entails primarily the construction of an apartment complex with 260 residential units and a pool, along with associated improvements to streets and utility infrastructure, including the construction of water retention basins, parking lots, sidewalks, and landscaping. The purpose of the study is to provide the City of Menifee with the necessary information and analysis to determine whether the proposed project would cause substantial adverse changes to any "historical resources," as defined by CEQA, that may exist in or near the project area. In order to accomplish this objective, CRM TECH conducted a historical/archaeological resources records search, pursued historical background research, contacted Native American representatives, and carried out an intensive-level field survey.

As a result of the field survey, a prehistoric isolate, subsequently designated 33-024087 in the California Historical Resources Inventory, was found in a fallow agricultural field that had recently been cleared, near the western project boundary. The isolate consists of a single obsidian flake. By definition, the isolate does not qualify as an archaeological site due to the lack of contextual integrity. As such, 33-024087 is not considered a potential "historical resource," and requires no further consideration in the CEQA-compliance process. No other cultural resources, either historic or prehistoric in origin, were encountered throughout the course of the study.

Based on these findings, CRM TECH concludes that no "historical resources" are present within or adjacent to the project area. Accordingly, CRM TECH recommends to the City of Menifee a determination of *No Mitigation Needed* regarding cultural resources under the condition that, if buried cultural materials are encountered during any earth-moving operations associated with the project, all work in that area be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the finds.

INTRODUCTION AND SETTING

Between November 2014 and January 2015, at the request of North Bayport Industrial Park II, Inc., CRM TECH performed a Phase I cultural resources study on approximately 20 acres of vacant land in the City of Menifee, Riverside County, California (Fig. 1). The subject property of the study consists of Assessor's Parcel Nos. 333-070-018, -019 and -053, located between Junipero Road and Menifee Road and to the north of McCall Boulevard, within the northeast quarter of Section 23, T5S R3W, San Bernardino Baseline and Meridian (Fig. 2). The study is a part of the environmental review process for a proposed residential development project known as The Village at Menifee. The City of Menifee, as the lead agency for the project, required the study in compliance with the California Environmental Quality Act (CEQA).

As currently proposed, the project entails primarily the construction of an apartment complex with 260 residential units and a pool, along with associated improvements to streets and utility infrastructure, including the construction of water retention basins, parking lots, sidewalks, and landscaping. The purpose of the study is to provide the City of Menifee with the necessary information and analysis to determine whether the proposed project would cause substantial adverse changes to any "historical resources," as defined by CEQA, that may exist in or near the project area. In order to accomplish this objective, CRM TECH conducted a historical/ archaeological resources records search, pursued historical background research, contacted Native American representatives, and carried out an intensive-level field survey.

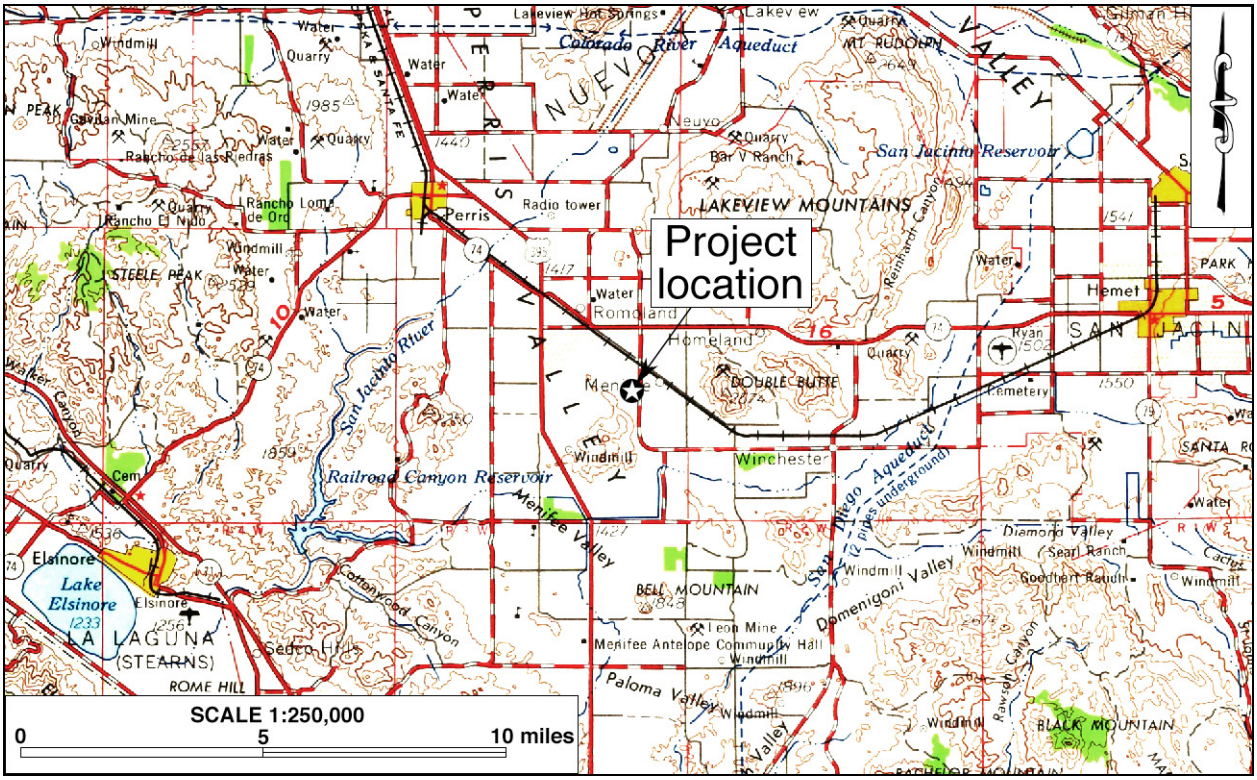


Figure 1. Project vicinity. (Based on USGS Santa Ana, Calif., 1:250,000 quadrangle [USGS 1979a])

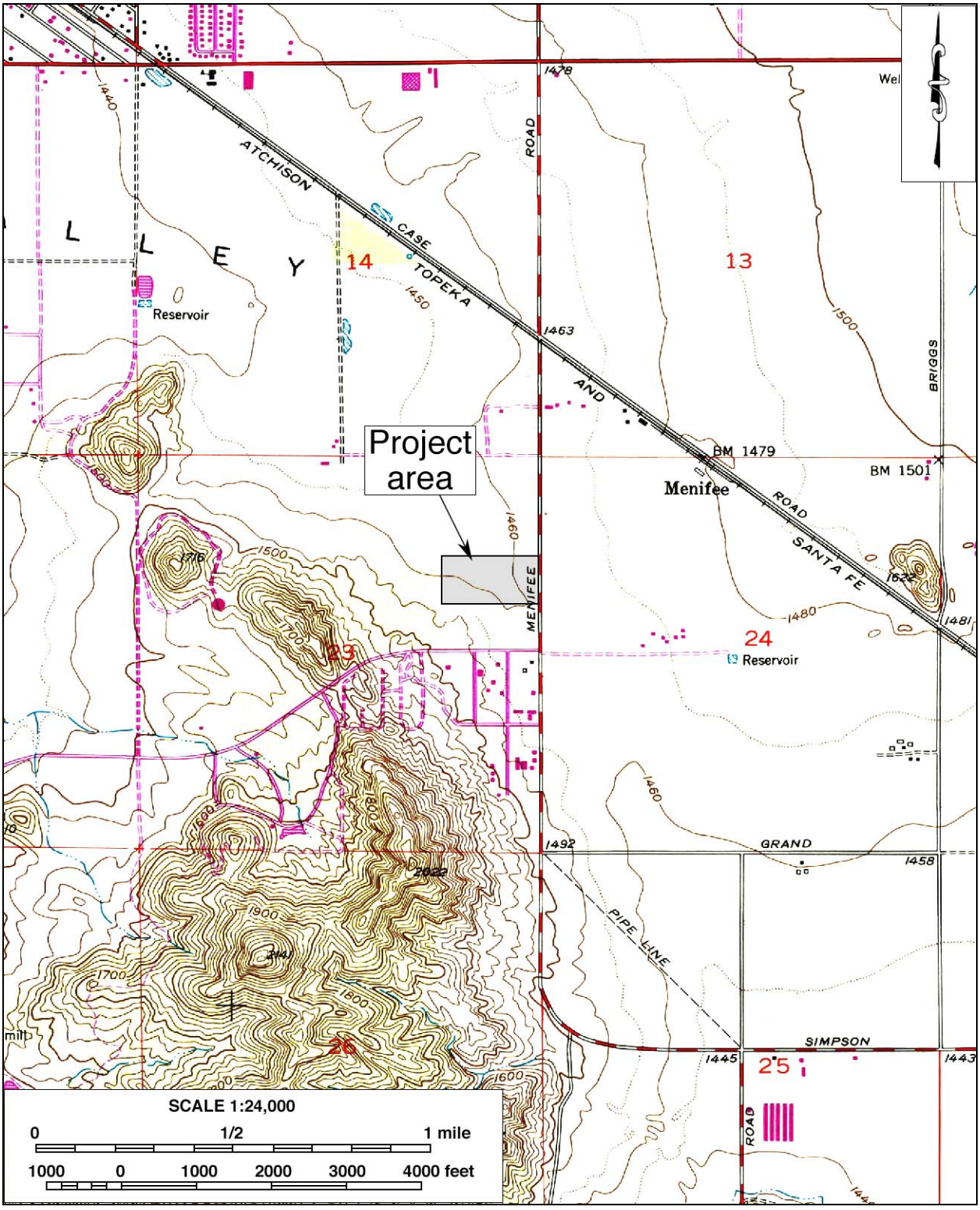


Figure 2. Project area. (Based on USGS Romoland, Calif., 1:24,000 quadrangle [USGS 1979b])

The study was completed under the direction of CRM TECH principal investigators Bai "Tom" Tang, M.A., and Michael Hogan, Ph.D. Other company personnel who participated in the study include archaeologist/report writer Deirdre Encarnación, M.A., and archaeologists Daniel Ballester, M.S., and Nina Gallardo, B.A. Further information on personnel qualifications is provided in Appendix 1.

The project area consists of rectangular-shaped tract of agricultural land that is currently under fallow. It is surrounded mostly by other parcels of open land, but adjoins a residential neighborhood to the east and an elementary school to the west, across Menifee Road and Junipero Road, respectively. Elevations on the property range approximately from 1,460 feet to 1,470 feet above mean sea level, with a slight westerly incline over a mostly level terrain. Vegetation is sparse, and includes mainly small grasses and shrubs. The ground surface has been extensively disturbed by possible past agricultural activities and recent disking (Fig. 3).

Geologically, the project area is located in the southeastern portion of the Perris Valley, a semi-arid inland alluvial valley that extends generally in a northwest-southeast direction. A number of isolated granitic mountains, such as the Lakeview Mountains and the Bernasconi Hills, separate the Perris Valley from the nearby Moreno, San Jacinto, and Menifee Valleys. These valleys are sub-basins of the San Jacinto watershed, one of the three major geographical subdivisions of the Santa Ana Basin. This valley complex is bounded on the northeast by the San Jacinto Mountains and on the southwest by the Santa Ana Mountains. The climate and environment of the surrounding area are typical of the southern California inland valleys, with temperatures in the region reaching over 100 degrees Fahrenheit in summer and dipping to near freezing in winter.

PREHISTORIC CONTEXT

ARCHAEOLOGY

It is widely acknowledged that human occupation in what is now the State of California began 8,000-12,000 years ago. In order to understand Native American cultures before European contact, archaeologists have devised chronological frameworks that endeavor to correlate the observable



Figure 3. Overview of the current condition of the project area, views to the west and the north. (Photographs taken on December 5, 2014)

technological and cultural changes in the archaeological record to distinct periods. Unfortunately, none of these chronological frameworks has been widely accepted, and none has been developed specifically for the so-called Inland Empire region of southern California, the nearest ones being for the Colorado Desert and Peninsular Ranges area (Warren 1984) and for the Mojave Desert (Warren and Crabtree 1986).

The development of an overall chronological framework for the region is hindered by the lack of distinct stratigraphic layers of cultural sequences that could be dated by absolute dating methods. Since results from archaeological investigations in this region have yet to be synthesized into an overall chronological framework, most archaeologists tend to follow a chronology adapted from a scheme developed by William J. Wallace in 1955 and modified by others (Wallace 1955; 1978; Warren 1968; Chartkoff and Chartkoff 1984; Moratto 1984). Although the beginning and ending dates of the different horizons or periods may vary, the general framework of prehistory in this region under this chronology consists of the following four periods:

- Early Hunting Stage (ca. 10000-6000 B.C.), which was characterized by human reliance on big game animals, as evidenced by large, archaic-style projectile points and the relative lack of plant-processing artifacts;
- Millingstone Horizon (ca. 6000 B.C.-1000 A.D.), when plant foods and small game animals came to the forefront of subsistence strategies, and from which a large number of millingstones, especially heavily used, deep-basin metates, were left;
- Late Prehistoric Period (ca. 1000-1500 A.D.), during which a more complex social organization, a more diversified subsistence base—as evidenced by smaller projectile points, expedient milling stones and, later, pottery—and regional cultures and tribal territories began to develop;
- Protohistoric Period (ca. 1500-1700s A.D.), which ushered in long-distance contact with Europeans and led to the historic period.

ETHNOHISTORY

The Perris Valley has long been a part of the homelands of the Luiseño Indians, a Takic-speaking people whose territory extended from present-day Riverside to Escondido and Oceanside. The name of the group derived from Mission San Luis Rey, which held jurisdiction over most of the traditional Luiseño territory during the mission period. Luiseño history, as recorded in traditional songs, tells the creation story from the birth of the first people, the *kaamalam*, to the sickness, death, and cremation of *Wiyoot*, the most powerful and wise one, at Lake Elsinore. In modern anthropological literature, the leading sources on Luiseño culture and history are Kroeber (1925), Strong (1929), and Bean and Shipek (1978).

Anthropologists have divided the Luiseño into several autonomous lineages or kin groups, which represented the basic political unit among most southern California Indians. According to Bean and Shipek (1978:551), each Luiseño lineage possessed a permanent base camp, or village, on the valley floor and another in the mountain regions for acorn collection. Luiseño villages were made up of family members and relatives, where chiefs of the village inherited their rank and each village owned its own land. Villages were usually located in sheltered canyons or near year-round sources of freshwater, always near subsistence resources.

The Luiseño exploited nearly all resources of the environment in a highly developed seasonal mobility system. The Luiseño people were primarily hunters and gatherers. They collected seeds, roots, wild berries, acorns, wild grapes, strawberries, wild onions, and prickly pear cacti, and hunted deer, elks, antelopes, rabbits, wood rats, and a variety of insects. Bows and arrows, atlatls or spear throwers, rabbit sticks, traps, nets, clubs, and slings were the main hunting tools. Each lineage had exclusive hunting and gathering rights in their procurement ranges. These boundaries were respected and only crossed with permission (Bean and Shipek 1978:551).

It is estimated that when Spanish colonization of Alta California began in 1769, the Luiseño had approximately 50 active villages with an average population of 200 each, although other estimates place the total Luiseño population at 4,000-5,000 (Bean and Shipek 1978:557). Some of the villages were forcefully moved to the Spanish missions, while others were largely left intact (*ibid.*:558). Ultimately, Luiseño population declined rapidly after European contact because of diseases such as small pox, harsh living conditions at the missions and, later, on the Mexican ranchos, where the Native people often worked as seasonal ranch hands.

After the American annexation of Alta California, the large number of non-Native settlers further eroded the foundation of the traditional Luiseño society. During the latter half of the 19th century, almost all of the remaining Luiseño villages were displaced, their occupants eventually removed to the various reservations. Today, the nearest Native American groups of Luiseño heritage live on the Soboba, Pechanga, and Pala Indian Reservations.

HISTORIC CONTEXT

REGIONAL OVERVIEW

In California, the so-called "historic period" began in 1769, when an expedition sent by the Spanish authorities in Mexico founded Mission San Diego, the first European outpost in Alta California. For several decades after that, Spanish colonization activities were largely confined to the coastal regions, and left little impact on the arid hinterland of the territory. Although the first explorers, including Pedro Fages and Juan Bautista de Anza, traveled through the Perris and San Jacinto Valleys as early as 1772-1774, no Europeans were known to have settled in the vicinity until the beginning of the 19th century (Gunther 1984).

Situated deep in the arid hinterland of Alta California, the Perris Valley received little influence from the Spanish/Mexican colonization activities in the coastal regions, although the area was nominally under the control of Mission San Luis Rey, established near present-day Oceanside in 1798 (Gunther 1984). After secularization of the mission system in the 1830s, the Mexican government issued several large land grants in what is now southwestern Riverside County to various prominent citizens in the province. The area around the project site, however, was not included in any of them, and remained public land when the U.S. annexed California in 1848 (BLM n.d.).

Around 1880, S. Menifee Wilson located a gold quartz mine about eight miles south of present-day Perris, and named it the Menifee Quartz Lode (Gunther 1984:320). The area around the mine thus came to be known as the Menifee Valley. Other miners began to arrive in the valley, and the

Menifee Mining District was soon organized. By the time Riverside County was created in 1893, Menifee had also become an important grain- and hay-growing area (*ibid*). Menifee continued as a farming and mining community well into the 20th century, however, in more recent decades residential and commercial development has increasingly becoming the driving force in regional growth. As the ongoing urbanization transformed the socioeconomic landscape of the valley, in October 2008, Menifee incorporated as the 26th city in Riverside County.

THE PROJECT AREA

Historic maps consulted for this study indicate that the project area apparently remained unsettled and undeveloped, except perhaps as agricultural fields, throughout the historic period, and the only man-made features noted prior to the 1970s were a few roads passing through (Figs. 2, 4-7). In the 1850s, when the U.S. government conducted the first systematic land surveys in the present-day Menifee area, no man-made features were observed in or near the project area (Fig. 4). In 1894, the project area became part of a large railroad land grant that the U.S. government awarded the Southern Pacific Company (BLM n.d.).

By the late 1890s, the forerunner of present-day Menifee Road had come into being along the eastern boundary of the project area, with other, secondary roads branching off across the project area and leading to the northwest (Fig. 5). Despite the gradual development of the Menifee area between the 1890s and the 1950s, no buildings or other indications of settlement or land development activities were noted on this property (Figs. 5-7). As late as 2005, Menifee Road remained the only notable man-made feature within or adjacent to the project boundaries (Fig. 2; NETR Online 1967-2005).

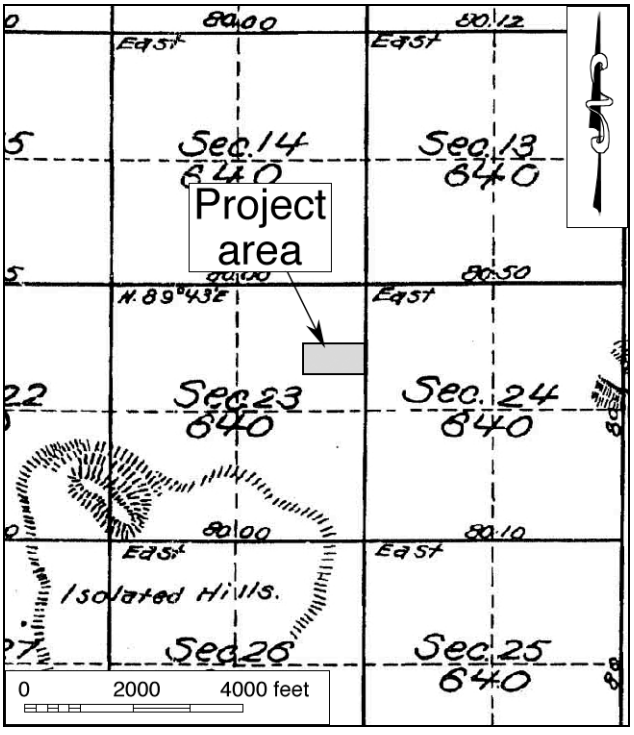


Figure 4. The project area and vicinity in 1853. (Source: GLO 1895)

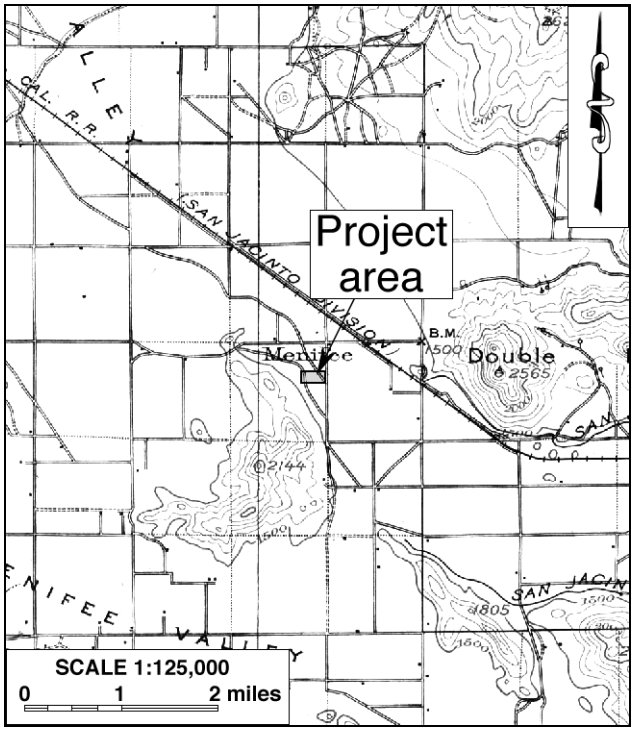


Figure 5. The project area and vicinity in 1897-1898. (Source: USGS 1901)

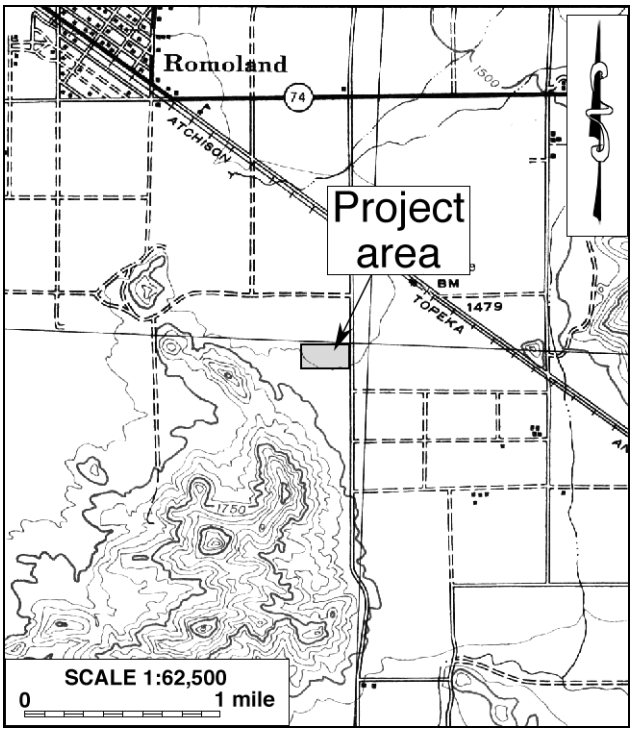


Figure 6. The project area and vicinity in 1939. (Source: USGS 1942)

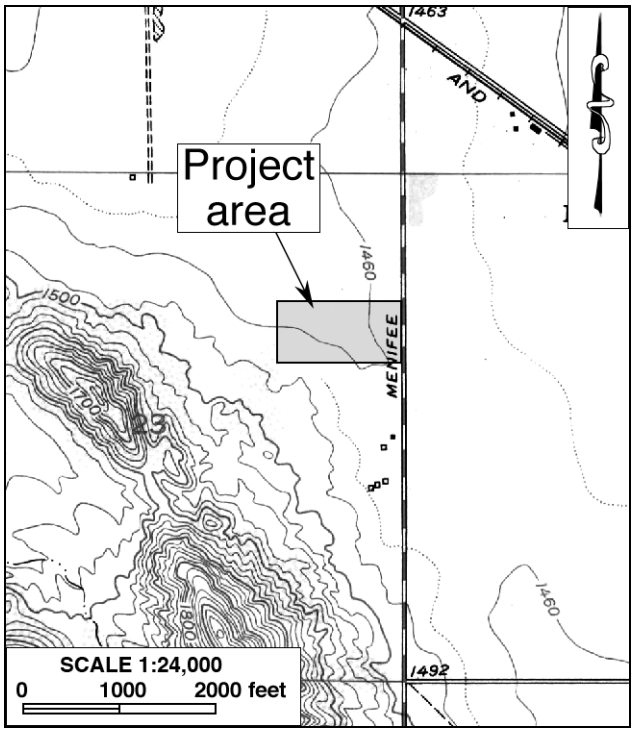


Figure 7. The project area and vicinity in 1951. (Source: USGS 1953)

RESEARCH DESIGN

Scientific research should be directed by a theoretical orientation that is geared toward gathering data to answer questions of current research interest. While numerous theoretical orientations have been put forward and used to guide archaeological research and to improve data-collecting efforts, the cultural ecology approach still tends to be the most useful paradigm in archaeological endeavors, although it is often used in conjunction with newer models. Basically, the cultural ecology approach to understanding cultural development contends that people develop behavioral patterns in order to exploit the resources of the area by means of particular technologies. It also assumes that there is interrelationship of these technologies, the environment, survival, and other aspects of the culture.

Since archaeology deals mostly with the cultural remains that are left long after the people are gone, this theoretical orientation has obvious advantages for archaeological research, although it is left to the archaeologist to determine the extent to which the behavior patterns used to exploit the environment affect other aspects of culture. Because of its continuing usefulness, the cultural ecology theoretical orientation is the basis of the historical/archaeological investigation used in this study. In practice, a research design serves to identify research issues and to illuminate new information for the purpose of evaluating the significance of cultural resources present within a study area. While no overarching research design has been established for this part of Riverside County, a standard set of research questions, or research domains, can be applied to historical/archaeological investigations in the region, especially for Phase I studies such as this.

The primary goal of a Phase I survey is to identify any prehistoric or historic-period cultural resources that may be present within the study area. This identification process generally includes a historical/archaeological resources records search, historical background research, Native American contacts, and a field inspection. While little detailed data may be available from the research methods employed during Phase I studies, some types of data gathered during the investigation may be used to address research issues, at least on a basic level. For instance, just the presence of cultural resources on a property indicates that people used the area. Other research questions, such as those posited below, can be addressed during Phase I studies only if certain types of artifacts or features are found within or near the study area.

- Is there any evidence that important events took place on the property or that the property is associated with a historically important person?
- Can anything be learned regarding the time period the area was used? Can it be determined whether people used the area during early or late prehistoric times, or during the historic period?
- Can anything be learned about the duration of the use of the land? Was the land used continuously for a long period, was it used only briefly, or was it used repeatedly over time?
- Can anything be learned about the subsistence strategies of the people who used the land? Is there any evidence visible on the surface that indicates what food resources were being processed and/or consumed?
- Would any of the information gathered during a Phase I study shed light on settlement patterns? Could activities in the study area be related with broader patterns of human habitation of the region? Did the people live on the property or use it only for resource procurement? If they lived on the property, was it a dense or sparse population? Does occupation of the subject property disclose any information regarding settlement strategies or preferences?
- Are there historical/archaeological data to be obtained about trade, travel, or cultural interactions?

In addition, a research design should also outline major themes in the prehistory and history of a region or specific area, so that any cultural resources encountered during a Phase I study could be evaluated within the proper context. Based on the prehistoric, ethnohistoric, and historic contexts discussed above, the following themes can be established for past human activities in the vicinity of the current project area:

- Native American land use during the Paleoindian, Early Archaic, Late Archaic, and Late Prehistoric Periods;
- Early European and American exploration of inland southern California during the early and mid-19th century;
- Travel and transportation across inland southern California;
- Settlement and agricultural growth in the Perris/Menifee Valleys during late 19th and early 20th centuries;
- Growth of the Perris/Menifee Valley region during the 20th century and suburbanization in the post-WWII era.

METHODS

RECORDS SEARCH

On December 3, 2014, Nina Gallardo conducted the records search at the Eastern Information Center (EIC), University of California, Riverside. During the records search, Gallardo examined maps and records on file at the EIC for previously identified cultural resources and existing cultural resources reports within a one-mile radius of the project area. Previously identified cultural resources include properties designated as California Historical Landmarks, Points of Historical Interest, or Riverside County Landmarks, as well as those listed in the National Register of Historic Places, the California Register of Historical Resources, or the California Historical Resources Inventory.

HISTORICAL BACKGROUND RESEARCH

Historical background research for this study was conducted by Bai "Tom" Tang on the basis of published literature in local and regional history, the archival records of the U.S. Bureau of Land Management (BLM), and historic maps and aerial photographs of the project vicinity. Among maps consulted for this study were U.S. General Land Office's (GLO) land survey plat maps dated 1895 and U.S. Geological Survey's (USGS) topographic maps dated 1901-1979. These maps are collected at the Science Library of the University of California, Riverside, and the California Desert District of the BLM, located in Moreno Valley. Aerial photographs of the project area are available at www.historicaerial.com. Findings from these sources are incorporated into the "Historic Context" section above.

NATIVE AMERICAN CONSULTATION

On November 21, 2014, CRM TECH submitted a written request to the State of California's Native American Heritage Commission for a records search in the commission's sacred lands file. Following the Native American Heritage Commission's recommendations, CRM TECH contacted 19 Native American representatives in the region in writing on December 16 to solicit local Native American input regarding any potential cultural resources concerns over the proposed project. Additionally, the Pechanga Band of Luiseño Indians and the Soboba Band of Luiseño Indians, the two Native American groups located closest to the project location, were invited to participate in the field survey. The correspondences between CRM TECH and the Native American representatives are attached to this report in Appendix 2.

FIELD SURVEY

On December 5, 2014, Daniel Ballester carried out the intensive-level, on-foot field survey of the project area. The survey was completed by walking a series of parallel east-west transects spaced 15 meters (approx. 50 feet) apart. In this way, the ground surface in the entire project area was systematically and carefully examined for any evidence of human activities dating to the prehistoric or historic period (i.e., 50 years ago or older). Ground visibility was good (80%) to excellent (90%) throughout the project area due to recent weed abatement activities.

RESULTS

PREVIOUS CULTURAL RESOURCES STUDIES IN THE VICINITY

The records search results indicate that the project area was surveyed for cultural resources in 2003 (Drover 2003, #5627 in Fig. 8), but no cultural resources had been recorded on the property prior to this study. The 2003 survey, covering a total of 160 acres, was conducted in anticipation of a residential development project that never materialized. Another past survey, completed in 2008, occurred on a proposed power transmission line along Menifee Road, adjacent to the current project area (Cooley 2008, #7528 in Fig. 8).

Outside the project area but within a one-mile radius, more than 30 additional studies have been reported to the EIC (Fig. 8). A bibliography of these past studies is attached to this report in Appendix 3. As a result of these studies, 21 historical/archaeological sites were previously recorded within the one-mile scope of the records search, as listed in Table 1. None of these sites was found in the immediate vicinity of the project area, and thus none of them requires further consideration during this study.

Table 1. Previously Recorded Cultural Resources within the Scope of the Records Search

Site No.	Recorded by/Date	Description
33-002221	Elliot 1931	Homestead, ca. 1848
33-003429	Drover 1986	Bedrock milling feature
33-009722	Brian F. Smith & Assoc. nd.	Historic-period homestead
33-009723	Brian F. Smith & Assoc. nd.	Historic-period refuse scatter
33-009724	Brian F. Smith & Assoc. nd.	Historic-period farm features
33-009725	Brian F. Smith & Assoc. nd.	Concrete foundations with refuse scatter
33-009726	Brian F. Smith & Assoc. nd.	Stockyard/cattle staging area
33-011464	Pierson 2002	Historic-period refuse dump
33-011465	Buysse 2002	Bedrock milling feature
33-011466	Pierson 2002	Bedrock milling feature with historic-period refuse scatter
33-011467	Buysse 2002	Bedrock milling features with sparse lithic scatter
33-011468	Pierson 2002	Bedrock milling features with historic-period refuse scatter
33-011469	Buysse 2002	Bedrock milling features
33-011470	Pierson 2002	Bedrock milling features with historic-period refuse scatter
33-011471	Pierson 2002	Bedrock milling features with artifacts and historic-period refuse scatter
33-011472	Buysse 2002	Bedrock milling feature
33-012535	Lambert 2003	Bedrock milling features with lithic scatter
33-012536	Lambert 2003	Scattered chipped-stone and groundstone artifacts
33-014092	Brian F. Smith & Assoc. 2005	Bedrock milling features
33-014093	Brian F. Smith & Assoc. 2005	Bedrock milling features with sparse lithic flake scatter
33-015743	Easter and Beedle 2005	San Jacinto Valley Railway

CULTURAL RESOURCES IN THE PROJECT AREA

During the field survey, a prehistoric isolate–i.e., a locality with fewer than three artifacts–was found in a fallow agricultural field that had recently been cleared, near the western project boundary. The isolate consists of a single obsidian flake that measures approximately 0.9x0.8x0.3 centimeters in

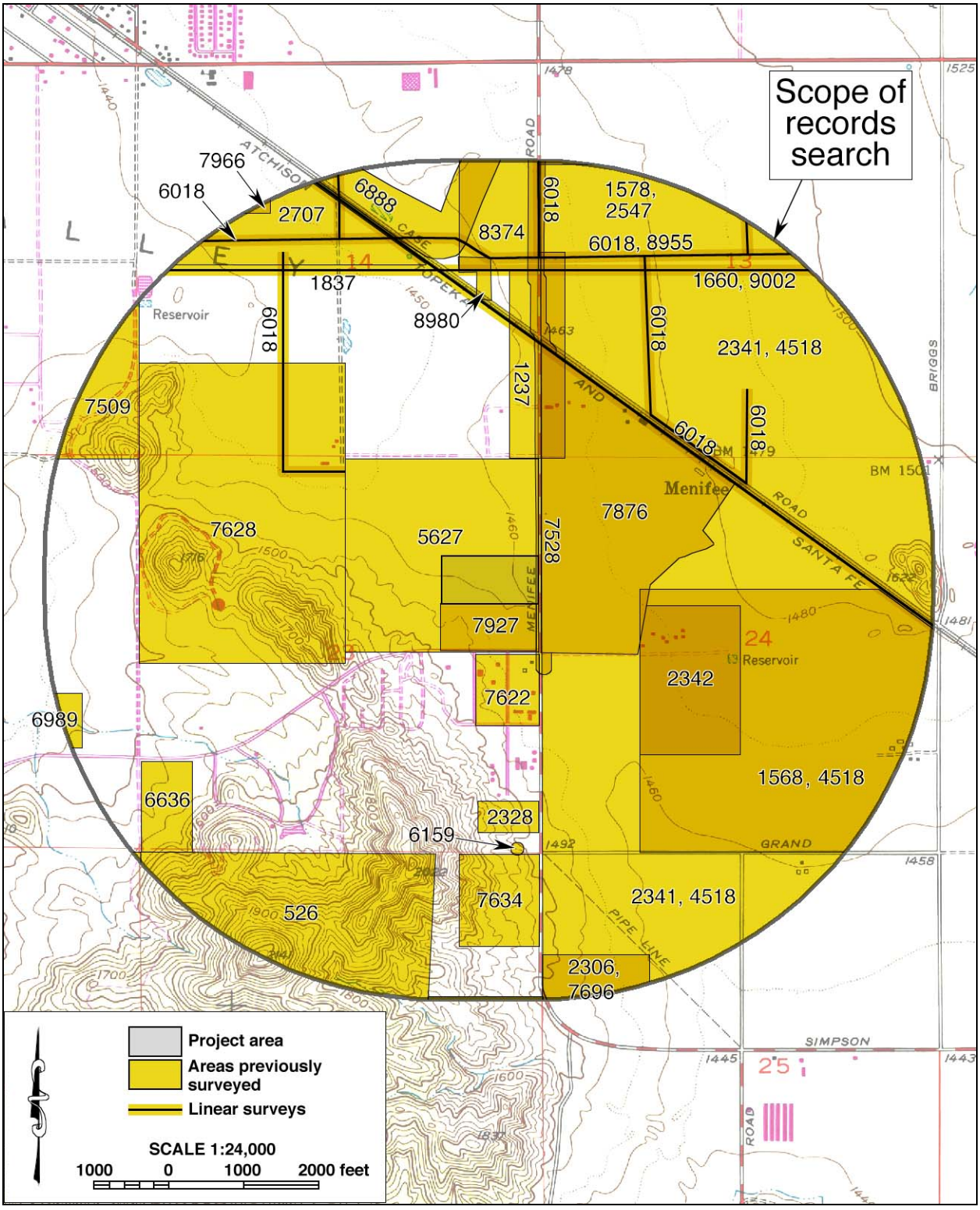


Figure 8. Previous cultural resources studies in the vicinity of the project area, listed by EIC file number. Locations of historical/archaeological sites are not shown as a protective measure.



Figure 9. Obsidian flake found within project area (Isolate 33-024087).

dimension and exhibits pressure flaking scars on the surface (Fig. 9). It was subsequently designated by the EIC as 33-024087 in the California Historical Resources Inventory.

No other evidence of human activities dating to the prehistoric or historic period was found within or adjacent to the project boundaries. Modern trash was observed over much of the property, especially along the eastern and western boundaries, but none of the items is of any historical or archaeological interest. The ground surface within the project area has been extensively disturbed by recent vegetation removal operations, and presumably by past agricultural activities.

NATIVE AMERICAN INPUT

In response to CRM TECH's inquiry, the NAHC reported in a letter dated December 11, 2014, that a record search in the Sacred Lands File failed to indicate the presence of Native American sacred places/sites in the project area. Nevertheless, the commission recommended that local Native American groups be contacted for further information. For that purpose, the commission provided a list of potential contacts in the region.

Upon receiving the NAHC's response, on December 16, 2014, CRM TECH sent written requests for comments to all 18 individuals on the referral list and the organizations they represent. In addition, Rose Duro, Cultural Committee Chairman for the Rincon Band of Mission Indians, was also contacted. As of this time, two of the tribal representatives have responded in writing (see App. 2).

Chris Devers, Cultural Clerk for the Pauma Band of Luiseño Indians, replied by e-mail on December 23, 2014, stating that the tribe was not aware of any Native American cultural resources in the project area but would recommend monitoring during grading activities on the property due to the potential for buried cultural remains. The tribe also requested to continue receiving cultural resources information regarding this project.

On December 31, 2014, Shasta Gaughen, Tribal Historic Preservation Officer for the Pala Band of Mission Indians, responded in writing and stated that the project area lay beyond the tribe's Traditional Use Area. Therefore, the Pala Band wished to defer to other tribes located in closer in proximity to the project area.

DISCUSSION

The purpose of this study is to identify any cultural resources within or adjacent to the project area, and to assist the City of Menifee in determining whether such resources meet the official definition of "historical resources," as provided in the California Public Resources Code, in particular CEQA.

According to PRC §5020.1(j), "'historical resource' includes, but is not limited to, any object, building, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California." More specifically, CEQA guidelines state that the term "historical resources" applies to any such resources listed in or determined to be eligible for listing in the California Register of Historical Resources, included in a local register of historical resources, or determined to be historically significant by the Lead Agency (Title 14 CCR §15064.5(a)(1)-(3)).

Regarding the proper criteria for the evaluation of historical significance, CEQA guidelines mandate that "a resource shall be considered by the lead agency to be 'historically significant' if the resource meets the criteria for listing on the California Register of Historical Resources" (Title 14 CCR §15064.5(a)(3)). A resource may be listed in the California Register if it meets any of the following criteria:

(1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
(2) Is associated with the lives of persons important in our past.
(3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
(4) Has yielded, or may be likely to yield, information important in prehistory or history. (PRC §5024.1(c))

In summary of the research results presented above, 33-024087, a prehistoric isolate consisting of a single obsidian flake, is the only cultural resource known to be present within or adjacent to the project area. By definition, the isolate does not qualify as an archaeological site due to the lack of contextual integrity. As such, 33-024087 is not considered a potential "historical resource," and requires no further consideration in the CEQA-compliance process. No other cultural resources, either historic or prehistoric in origin, were encountered throughout the course of the study. Based on these findings, and in light of the criteria listed above, the present study concludes that *no historical resources exist within or adjacent to the project area*.

RECOMMENDED MITIGATION

CEQA establishes that "a project that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment" (PRC §21084.1). "Substantial adverse change," according to PRC §5020.1(q), "means demolition,

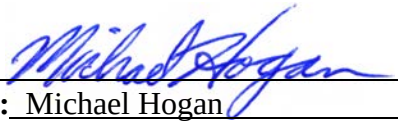
destruction, relocation, or alteration such that the significance of a historical resource would be impaired."

As no "historical resources," as defined by CEQA, were encountered within or adjacent to the project area during this study, CRM TECH recommends to the City of Menifee a determination of *No Mitigation Needed* regarding cultural resources under the condition that, if buried cultural materials are encountered during any earth-moving operations associated with the project, all work in that area be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the finds.

CERTIFICATION

I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this archaeological report, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

DATE: January 22, 2015

SIGNED: 

Print Name: Michael Hogan

Riverside County Registration No.: 113

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APPENDIX 1:
PERSONNEL QUALIFICATIONS

PRINCIPAL INVESTIGATOR/HISTORIAN
Bai "Tom" Tang, M.A.

Education

1988-1993	Graduate Program in Public History/Historic Preservation, UC Riverside.
1987	M.A., American History, Yale University, New Haven, Connecticut.
1982	B.A., History, Northwestern University, Xi'an, China.
2000	"Introduction to Section 106 Review," presented by the Advisory Council on Historic Preservation and the University of Nevada, Reno.
1994	"Assessing the Significance of Historic Archaeological Sites," presented by the Historic Preservation Program, University of Nevada, Reno.

Professional Experience

2002-	Principal Investigator, CRM TECH, Riverside/Colton, California.
1993-2002	Project Historian/Architectural Historian, CRM TECH, Riverside, California.
1993-1997	Project Historian, Greenwood and Associates, Pacific Palisades, California.
1991-1993	Project Historian, Archaeological Research Unit, UC Riverside.
1990	Intern Researcher, California State Office of Historic Preservation, Sacramento.
1990-1992	Teaching Assistant, History of Modern World, UC Riverside.
1988-1993	Research Assistant, American Social History, UC Riverside.
1985-1988	Research Assistant, Modern Chinese History, Yale University.
1985-1986	Teaching Assistant, Modern Chinese History, Yale University.
1982-1985	Lecturer, History, Xi'an Foreign Languages Institute, Xi'an, China.

Honors and Awards

1988-1990	University of California Graduate Fellowship, UC Riverside.
1985-1987	Yale University Fellowship, Yale University Graduate School.
1980, 1981	President's Honor List, Northwestern University, Xi'an, China.

Cultural Resources Management Reports

Preliminary Analyses and Recommendations Regarding California's Cultural Resources Inventory System (With Special Reference to Condition 14 of NPS 1990 Program Review Report). California State Office of Historic Preservation working paper, Sacramento, September 1990.

Numerous cultural resources management reports with the Archaeological Research Unit, Greenwood and Associates, and CRM TECH, since October 1991.

PRINCIPAL INVESTIGATOR/ARCHAEOLOGIST
Michael Hogan, Ph.D., RPA*

Education

1991	Ph.D., Anthropology, University of California, Riverside.
1981	B.S., Anthropology, University of California, Riverside; with honors.
1980-1981	Education Abroad Program, Lima, Peru.
2002	Section 106—National Historic Preservation Act: Federal Law at the Local Level. UCLA Extension Course #888.
2002	"Recognizing Historic Artifacts," workshop presented by Richard Norwood, Historical Archaeologist.
2002	"Wending Your Way through the Regulatory Maze," symposium presented by the Association of Environmental Professionals.
1992	"Southern California Ceramics Workshop," presented by Jerry Schaefer.
1992	"Historic Artifact Workshop," presented by Anne Duffield-Stoll.

Professional Experience

2002-	Principal Investigator, CRM TECH, Riverside/Colton, California.
1999-2002	Project Archaeologist/Field Director, CRM TECH, Riverside.
1996-1998	Project Director and Ethnographer, Statistical Research, Inc., Redlands.
1992-1998	Assistant Research Anthropologist, University of California, Riverside
1992-1995	Project Director, Archaeological Research Unit, U. C. Riverside.
1993-1994	Adjunct Professor, Riverside Community College, Mt. San Jacinto College, U.C. Riverside, Chapman University, and San Bernardino Valley College.
1991-1992	Crew Chief, Archaeological Research Unit, U. C. Riverside.
1984-1998	Archaeological Technician, Field Director, and Project Director for various southern California cultural resources management firms.

Research Interests

Cultural Resource Management, Southern Californian Archaeology, Settlement and Exchange Patterns, Specialization and Stratification, Culture Change, Native American Culture, Cultural Diversity.

Cultural Resources Management Reports

Author and co-author of, contributor to, and principal investigator for numerous cultural resources management study reports since 1986.

Memberships

* Register of Professional Archaeologists; Society for American Archaeology; Society for California Archaeology; Pacific Coast Archaeological Society; Coachella Valley Archaeological Society.

PROJECT ARCHAEOLOGIST/REPORT WRITER
Deirdre Encarnación, M.A.

Education

2003	M.A., Anthropology, San Diego State University, California.
2000	B.A., Anthropology, minor in Biology, with honors; San Diego State University, California.
1993	A.A., Communications, Nassau Community College, Garden City, N.Y.
2001	Archaeological Field School, San Diego State University.
2000	Archaeological Field School, San Diego State University.

Professional Experience

2004-	Project Archaeologist/Report Writer, CRM TECH, Riverside/Colton, California.
2001-2003	Part-time Lecturer, San Diego State University, California.
2001	Research Assistant for Dr. Lynn Gamble, San Diego State University.
2001	Archaeological Collection Catalog, SDSU Foundation.

PROJECT ARCHAEOLOGIST
Nina Gallardo, B.A.

Education

2004 B.A., Anthropology/Law and Society, University of California, Riverside.

Professional Experience

2004- Project Archaeologist, CRM TECH, Riverside/Colton, California.

- Surveys, excavations, construction monitoring, field recordation, mapping, records searches, and Native American liaison.

Honors and Awards

2000-2002 Dean's Honors List, University of California, Riverside.

PROJECT ARCHAEOLOGIST/FIELD DIRECTOR
Daniel Ballester, M.S.

Education

2013	M.S., Geographic Information System (GIS), University of Redlands, California.
1998	B.A., Anthropology, California State University, San Bernardino.
1997	Archaeological Field School, University of Las Vegas and University of California, Riverside.
1994	University of Puerto Rico, Rio Piedras, Puerto Rico.
2007	Certificate in Geographic Information Systems (GIS), California State University, San Bernardino.
2002	"Historic Archaeology Workshop," presented by Richard Norwood, Base Archaeologist, Edwards Air Force Base; presented at CRM TECH, Riverside, California.

Professional Experience

2002-	Field Director/GIS Specialist, CRM TECH, Riverside/Colton, California.
1999-2002	Project Archaeologist, CRM TECH, Riverside, California.
1998-1999	Field Crew, K.E.A. Environmental, San Diego, California.
1998	Field Crew, A.S.M. Affiliates, Encinitas, California.
1998	Field Crew, Archaeological Research Unit, University of California, Riverside.

APPENDIX 2

CORRESPONDENCE WITH NATIVE AMERICAN REPRESENTATIVES*

* A total of 19 local Native American representatives were contacted; a sample letter is included in this report.

Sacred Lands File & Native American Contacts List Request

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691
(916) 373-3710
(916) 373-5471 – Fax
nahc@nahc.ca.gov

Project: The Village at Junipero; APNs 333-070-018, -019, and -053 (CRM TECH Contract No. 2875)

County: Riverside

USGS Quadrangle Name: Romoland, Calif.

Township 5 South **Range** 3 West SB **BM; Section(s)** 23

Company/Firm/Agency: CRM TECH

Contact Person: Nina Gallardo

Street Address: 1016 E. Cooley Drive, Suite A/B

City: Colton, CA **Zip:** 92324

Phone: (909) 824-6400 **Fax:** (909) 824-6405

Email: Ngallardo@crmtech.us

Project Description: The primary component of the project is a residential development on 20 acres of land located near the northwest corner of Menifee Road and McCall Boulevard in the City of Menifee, Riverside County, California.

November 21, 2014

From: Nina Gallardo <ngallardo@crmtech.us>
Sent: Wednesday, December 3, 2014 1:26 PM
To: 'Tina Thompson Mendoza'
Cc: ahoover@pechanga-nsn.gov
Subject: Survey for The Village at Junipero; APNs 333-070-018, -019 and -053 (CRM TECH Contract No. 2875)

Hello Ms. Mendoza,

I'm emailing to inform you that we will be conducting an archaeological survey this Friday (12/5/14) at 7 am for The Village at Junipero project (APNs 333-070-018, -019, and -053; CRM#2875) and we want to see if the Pechanga Tribe would like to participate in the survey with us. I'm attaching a map for this project. Please contact me or Daniel Ballester (909-376-7842) for more information about the location to meet up for the survey. Thank you for your time.

Nina Gallardo
Project Archaeologist/Native American liaison
CRM TECH
1016 E. Cooley Drive, Ste. A/B
Colton, CA 92324
(909) 824-6400

From: Nina Gallardo <ngallardo@crmtech.us>
Sent: Wednesday, December 3, 2014 1:30 PM
To: 'Joseph Ontiveros'
Subject: Archaeological survey for The Village at Junipero; APNs 333-070-018, -019 and -053 (CRM TECH Contract No. 2875)

Hello Mr. Ontiveros,

I'm emailing to inform you that we will be conducting an archaeological survey this Friday (12/5/14) at 7 am for The Village at Junipero project (APNs 333-070-018, -019, and -053; CRM#2875) and we want to see if the Soboba Band would like to participate in the survey with us. I'm attaching a map for this project. Please contact me or Daniel Ballester (909-376-7842) for more information about the location to meet up for the survey. Thank you for your time.

Nina Gallardo
Project Archaeologist/Native American liaison
CRM TECH
1016 E. Cooley Drive, Ste. A/B
Colton, CA 92324
(909) 824-6400

STATE OF CALIFORNIA Edmund G. Brown, Jr., Governor

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd., ROOM 100
West SACRAMENTO, CA 95691
(916) 373-3710
Fax (916) 373-5471

December 11, 2014

Nina Gallardo
CRM Tech
1016 E. Cooley Drive, Suite A/B
Colton, CA 92324

Sent by Fax: (909) 824-6405
Number of Pages: 4

Re: The Village at Junipero: APNs 333-070-018, -019 and 333-070-053 (CRM TECH Contract No, 2875), Riverside County.

Dear Ms. Gallardo,

A record search of the sacred land file has failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Enclosed is a list of Native Americans individuals/organizations who may have knowledge of cultural resources in the project area. The Commission makes no recommendation or preference of a single individual, or group over another. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe or group. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 373-3712.

Sincerely,

Katy Sanchez

Katy Sanchez
Associate Government Program Analyst

Native American Contacts
Riverside County
December 10, 2014

Pala Band of Mission Indians
Historic Preservation Office/Shasta Gaughen
12196 Pala Mission Road Luiseno
Pala , CA 92059 Cupeno
sgaughen@palatribe.com
(760) 891-3515
(760) 742-3189 Fax

Soboba Band of Mission Indians
Rosemary Morillo, Chairperson; Attn: Carrie Garcia
P.O. Box 487 Luiseno
San Jacinto , CA 92581
carrieg@soboba-nsn.gov
(951) 654-2765
(951) 654-4198 Fax

Pauma & Yuima Reservation
Randall Majel, Chairperson
P.O. Box 369 Luiseno
Pauma Valley CA 92061
(760) 742-1289
(760) 742-3422 Fax

Pauma Valley Band of Luiseño Indians
Bennae Calac
P.O. Box 369 Luiseno
Pauma Valley CA 92061
bennaecalac@aol.com
(760) 617-2872
(760) 742-3422 Fax

Pechanga Band of Mission Indians
Paul Macarro, Cultural Resources Manager
P.O. Box 1477 Luiseno
Temecula , CA 92593
pmacarro@pechanga-nsn.gov
(951) 770-8100
(951) 506-9491 Fax

Pauma & Yuima
ATTN: EPA
P.O. Box 369 Luiseno
Pauma Valley CA 92061
kymberli_peters@yahoo.com
(760) 742-1289
(760) 742-3422 Fax

Rincon Band of Mission Indians
Vincent Whipple, Tribal Historic Pres. Officer
1 West Tribal Road Luiseno
Valley Center, CA 92082
vwhipple@rincontribe.org
(760) 297-2635
(760) 297-2639 Fax

Rincon Band of Mission Indians
Bo Mazzetti, Chairperson
1 West Tribal Road Luiseno
Valley Center, CA 92082
bomazzetti@aol.com
(760) 749-1051
(760) 749-8901 Fax

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting locative Americans with regard to cultural resources for the proposed The Village at Junipero; APNs 333-070-018, 019 and 333-070-053 (CRM TECH Contract No. 2875), Riverside County.

Native American Contacts
Riverside County
December 10, 2014

San Luis Rey Band of Mission Indians
Tribal Council
1889 Sunset Drive Luiseno
Vista , CA 92081
cjmojado@slrmissionindians.org
(760) 724-8505
(760) 724-2172 Fax

William J. Pink
48310 Pechanga Road Luiseno
Temecula , CA 92592
wjpink@hotmail.com
(909) 936-1216
Prefers e-mail contact

San Luis Rey Band of Mission Indians
Cultural Department
1889 Sunset Drive Luiseno
Vista , CA 92081 Cupeno
cjmojado@slrmissionindians.org
(760) 724-8505
(760) 724-2172 Fax

La Jolla Band of Mission Indians
Lavonne Peck, Chairwoman
22000 Highway 76 Luiseno
Pauma Valley CA 92061
rob.roy@lajolla-nsn.gov
(760) 742-3771
(760) 742-1704 Fax

Kupa Cultural Center (Pala Band)
Shasta Gaughen, Assistant Director
35008 Pala-Temecula Rd., PMB 50 Luiseno
Pala , CA 92059
cupa@palatribe.com
(760) 891-3590
(760) 742-4543 Fax

Pauma & Yuima Reservation
Charles Devers, Cultural Committee
P.O. Box 369 Luiseno
Pauma Valley CA 92061
(760) 742-1289
(760) 742-3422 Fax

Pechanga Band of Mission Indians
Mark Macarro, Chairperson
P.O. Box 1477 Luiseno
Temecula , CA 92593
mgoodhart@pechanga-nsn.
(951) 770-6100
(951) 695-1778 Fax

Pechanga Cultural Resources Department
Anna Hoover, Cultural Analyst
P.O. Box 2183 Luiseño
Temecula , CA 92593
ahoover@pechanga-nsn.gov
(951) 770-8104
(951) 694-0446 Fax

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting locative Americans with regard to cultural resources for the proposed The Village at Junipero; APNs 333-070-018, 019 and 333-070-053 (CRM TECH Contract No. 2875), Riverside County.

Native American Contacts
Riverside County
December 10, 2014

Soboba Band of Luiseno Indians
Joseph Ontiveros, Cultural Resource Department
P.O. BOX 487 Luiseno
San Jacinto , CA 92581
jontiveros@soboba-nsn.gov
(951) 663-5279
(951) 654-5544, ext 4137
(951) 654-4198 Fax

Pala Band of Mission Indians
Robert H. Smith, Chairperson
35008 Pala-Temecula Rd., PMB 50 Luiseno
Pala , CA 92059 Cupeno
(760) 891-3500
(760) 742-3189 Fax

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting locative Americans with regard to cultural resources for the proposed The Village at Junipero; APNs 333-070-018, 019 and 333-070-053 (CRM TECH Contract No. 2875), Riverside County.

December 16, 2014

Charlie Devers, Cultural Committee
Pauma and Yuima Reservation
P. O. Box 369
Pauma Valley, CA 92061

RE: The Village at Junipero; APNs 333-070-018, -019, and -053
Approximately 19 Acres in the City of Menifee
Riverside County, California
CRM TECH Contract #2875

Dear Mr. Devers:

North Bayport Industrial Park II, Inc., is proposing a residential development in the City of Menifee, Riverside County, California, known as The Village at Junipero Project (APNs 333-070-018, -019, and -053). The project area encompasses approximately 19 acres of undeveloped land located north of the intersection of McCall Boulevard and Menifee Road. The accompanying map, based on the USGS Romoland, Calif., 7.5' quadrangle, depicts the location of the project area in Section 23, T5S R3W, SBBM. CRM TECH has been hired to conduct a cultural resource study, including the Native American scoping, for this project.

In a letter dated December 11, 2014, the Native American Heritage Commission reports that the sacred lands record search identified no Native American cultural resources within the project area, but recommends that local Native American groups be contacted for further information. Therefore, as part of the cultural resources study for this project, I am writing to request your input on potential Native American cultural resources in or near the project area.

According to records on file at the Eastern Information Center, there are no known historical/archaeological sites within the boundaries of the project area. Outside the project area but within a one-mile radius, 9 prehistoric sites and 12 historic-period sites were previously identified. The closest among these, Site 33-012535, consists of a bedrock milling feature and a lithic scatter, located about 0.10 mile west of the project area. The majority of the sites are concentrated in the foothills to the west of the project area and consist mainly of bedrock milling features and lithic scatters. The majority of the historic-period sites are farms, foundations, and refuse dumps. A systematic field survey of the project area on December 5, 2014, encountered one isolate near the western boundary of the project area, consisting of a single obsidian flake.

Please respond at your earliest convenience if you have any specific knowledge of sacred/religious sites or other sites of Native American traditional cultural value within or near the project area that need to be taken into consideration as part of the cultural resources investigation. Any information or concerns may be forwarded to CRM TECH by telephone, e-mail, facsimile, or standard mail. Requests for documentation or information we cannot provide will be forwarded to our client and/or the lead agency, which is the City of Menifee for CEQA-compliance purposes. We would also like to clarify that CRM TECH, as the cultural resources consultant for the project, is not the appropriate entity to initiate government-to-government consultations. Thank you for the time and effort in addressing this important matter.

Respectfully,

Nina Gallardo, CRM TECH
Email: ngallardo@crmtech.us

Encl.: project area map

From: Cultural <Cultural@pauma-nsn.gov>
Sent: Tuesday, December 23, 2014 3:11 PM
To: ngallardo@crmtech.us
Cc: Dixon, Patti; Jeremy Zagarella
Subject: The Village at Junipero

Ms. Gallardo,

The Pauma Band of Luiseno Indians has received your December 16 letter on the Village at Junipero. We would urge the developer to have cultural monitors on site during the grading phase of the project. While we are not aware of any specific sites on the project property and with sites close by, the potential of un-earthing cultural resources increases. Please continue to provide us with information of your studies on or near the project property.

Thank you,

Chris Devers
Cultural Clerk
Pauma Band of Luiseno Indians

PALA TRIBAL HISTORIC PRESERVATION OFFICE

PMB 50, 35008 Pala Temecula Road
Pala, CA 92059
760-891-3510 Office | 760-742-3189 Fax

PALA THPO

December 31, 2014

Nina Gallardo
CRM Tech
2026 E. Cooley Drive, Suite A/B
Colton, CA 92324

Re: The Village at Junipero; CRM Tech Contract # 2875

Dear Mrs. Gallardo,

The Pala Band of Mission Indians Tribal Historic Preservation Office has received your notification of the project referenced above. This letter constitutes our response on behalf of Robert Smith, Tribal Chairman.

We have consulted our maps and determined that the project as described is not within the boundaries of the recognized Pala Indian Reservation. The project is also beyond the boundaries of the territory that the tribe considers its Traditional Use Area (TUA). Therefore, we have no objection to the continuation of project activities as currently planned and we defer to the wishes of Tribes in closer proximity to the project area.

We appreciate involvement with your initiative and look forward to working with you on future efforts. If you have questions or need additional information, please do not hesitate to contact me by telephone at 760-891-3515 or by e-mail at sgaughen@palatribe.com.

Sincerely,

Shasta C. Gaughen, PhD
Tribal Historic Preservation Officer
Pala Band of Mission Indians

ATTENTION: THE PALA TRIBAL HISTORIC PRESERVATION OFFICE IS RESPONSIBLE FOR ALL REQUESTS FOR CONSULTATION. PLEASE ADDRESS CORRESPONDENCE TO **SHASTA C. GAUGHEN** AT THE ABOVE ADDRESS. IT IS NOT NECESSARY TO ALSO SEND NOTICES TO PALA TRIBAL CHAIRMAN ROBERT SMITH.

APPENDIX 3:

BIBLIOGRAPHY OF PREVIOUS STUDIES IN THE PROJECT VICINITY

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
RI-00526	NADB-R - 1080565; Voided - MF-0457	1979	James Baldwin	Environmental Impact Evaluation: An Archaeological Assessment of Tentative Tract 13118, Sun City Area of Riverside County, California	Field Survey Consultants, Ridgecrest, CA	
RI-00876	NADB-R - 1080931; Voided - MF-0794	1980	Richard C. Jenkins	Environmental Impact Evaluation: An Archaeological Assessment of Tentative Parcel 16235, Reinhardt Canyon, Riverside County, California	Archaeological Research Unit, U.C. Riverside	33-001739
RI-01518	NADB-R - 1081792; Voided - MF-1603	1982	SWENSON, JAMES D	AN ARCHAEOLOGICAL ASSESSMENT OF GALATIANS 2:20 CONFERENCE CENTER (PLOT PLAN NO. 6801), RIVERSIDE COUNTY, CALIFORNIA	ARCHAEOLOGICAL RESEARCH UNIT, U.C. RIVERSIDE	33-001485
RI-01568	NADB-R - 1081860; Voided - MF-1668	1978	BOWLES, LARRY L. and JEAN SALPAS	AN ARCHAEOLOGICAL ASSESSMENT OF PARCEL 13408	AUTHOR(S)	
RI-01660	NADB-R - 1081951; Submitter - UCRARU #722; Voided - MF-1755	1983	MCCARTHY, DANIEL F.	ARCHAEOLOGICAL ASSESSMENT OF THE PROPOSED HOMELAND-GREEN ARCES POLLUTION PROJECT NO. C-06-2886, EASTERN MUNICIPAL WATER DISTRICT, RIVERSIDE COUNTY, CALIFORNIA	ARCHAEOLOGICAL RESEARCH UNIT, U.C. RIVERSIDE	33-002608, 33-002609, 33-002610, 33-002611, 33-002612
RI-01837	NADB-R - 1082217; Submitter - 0767; Voided - MF-2004	1984	BOUSCAREN, STEPHEN and DANIEL MCCARTHY	AN ARCHAEOLOGICAL ASSESSMENT OF THE PROPOSED DEVERS-VALLEY 500 KV TRANSMISSION LINE AND CORRIDOR AND THE PROPOSED VALLEY-AULD-SKYLARK 115 KV T/L CORRIDOR, RIVERSIDE COUNTY, CALIFORNIA	ARCHAEOLOGICAL RESEARCH UNIT, U.C. RIVERSIDE	33-000057, 33-000713, 33-000806, 33-001395, 33-002830, 33-002848, 33-002849, 33-002850, 33-002851, 33-002852, 33-002853, 33-002854, 33-002855
RI-02306	NADB-R - 1082763; Voided - MF-2507	1988	BREECE, W.H. and B. PADON	AN ARCHAEOLOGICAL SURVEY OF THREE PROPOSED LOCATIONS FOR THE SOUTHWEST COUNTY JUSTICE CENTER, RIVERSIDE COUNTY	CULTURAL RESOURCE MANAGEMENT DIVISION	
RI-02328	NADB-R - 1082785; Voided - MF-2529	1988	BREWER, CHRISTINA	AN ARCHAEOLOGICAL ASSESSMENT OF APN NO. 333.080.020, CASE NO. PUP 633, COUNTY OF RIVERSIDE, CALIFORNIA	AUTHOR(S)	
RI-02341	NADB-R - 1082805; Voided - MF-2547	1988	DROVER, C.E.	A CULTURAL RESOURCE INVENTORY, MENIFEE RANCH SPECIFIC PLAN PROJECT NEAR ROMOLAND, CALIFORNIA	AUTHOR(S)	33-003429
RI-02342	NADB-R - 1084635; Voided - MF-2547	1989	DROVER, CHRISTOPHER	A CULTURAL RESOURCE REVIEW: AN ADDENDUM TO THE MENIFEE RANCH SPECIFIC PLAN, NEAR HEMET, CALIFORNIA	AUTHOR	

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
RI-02547	NADB-R - 1083034; Voided - MF-2771	1989	DROVER, CHRISTOPHER E. and COLE PARKER	RANCHO VILLAGES ASSESSMENT DISTRICT SEWER LIFT STATION: THE VAIL SITE, RIV-365. AN ARCHAEOLOGICAL TEST AND MITIGATION.	AUTHOR(S)	33-000365
RI-02707	NADB-R - 1083201; Voided - MF-2911	1989	WHITE, ROBERT	AN ARCHAEOLOGICAL ASSESSMENT OF THREE ADJACENT PARCELS: #25029, 25030 AND 25031 EAST OF THE WALKER BASIN, RIVERSIDE COUNTY.	ARCHAEOLOGICAL ASSOCIATES, LTD.	
RI-04461	NADB-R - 1081786; Voided - MF-1595	1982	SCIENTIFIC RESOURCE SURVEYS, INC.	Archaeological Assessment Form (ARCHAEOLOGICAL SURVEY OF PROPERTY EAST OF SUN CITY)	Scientific Resource Surveys, Inc., Huntington Beach, CA	
RI-04518	NADB-R - 1085879	2000	SMITH, BRIAN F. and JOHANNA L. BUYSSE	AN ARCHAEOLOGICAL/HISTORICAL STUDY FOR THE MENIFEE RANCH PROJECT, PERRIS VALLEY, COUNTY OF RIVERSIDE--SPECIFIC PLAN NUMBER 301, AMENDMENT #1	BRIAN F. SMITH AND ASSOCIATES, San Diego, CA	33-003429, 33-009722, 33-009723, 33-009724, 33-009725, 33-009726
RI-05627	NADB-R - 1086990	2003	DROVER, CHRISTOPHER E.	A CULTURAL RESOURCERS INVENTORY: AN ARCHAEOLOGICAL ASSESSMENT OF ROMOLAND 64 PROJECT, ROMOLAND, RIVERSIDE COUNTY, CA	CHRISTOPHER DROVER	33-012535, 33-012536
RI-06018	NADB-R - 1087381; Submitter - 1104	2003	TANG, BAI, MICHAEL HOGAN, MARIAM DAHDUL, and DANIEL BALLESTER	HISTORICAL/ARCHAEOLOGICAL RESOURCES SURVEY REPORT, MENIFEE VALLEY NORTH DRAINAGE FACILITIES PROJECT, IN AND NEAR THE COMMUNITIES OF ROMOLAND AND HOMELAND, RIVERSIDE COUNTY, CA	CRM TECH	
RI-06159	NADB-R - 1087522	2004	AISLIN-KAY, MARNIE	LETTER REPORT: CULTURAL RESOURCE RECORDS SEARCH AND SITE VISIT RESULTS FOR CINGULAR TELECOMMUNICATIONS FACILITY CANDIDATE SC-319-02 (SUNRISE CHRISTIAN CHURCH), 27985 MENIFEE ROAD, ROMOLAND, RIVERSIDE COUNTY, CA	MICHAEL BRANDMAN ASSOCIATES	
RI-06636	NADB-R - 1088003; Submitter - CRM TECH CONTRACT #1814A	2006	TANG, BAI, MICHAEL HOGAN, MARIAM DAHDUL, and JOHN J. EDDY	HISTORICAL/ARCHAEOLOGICAL RESOURCES SURVEY REPORT: SPANOS-ANTELOPE RIDGE PROJECT, NEAR THE COMMUNITY OF SUN CITY, RIVERSIDE COUNTY, CALIFORNIA	CRM TECH	

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
RI-06888	Submitter - 06-63	2006	Lerch, Michael K. and Gray, Marlesa A.	Cultural Resources Assessment of the Valley-Ivyglen Transmission Line Project, Riverside County, California	Statistical Research, Inc.	33-015346, 33-015347, 33-015348, 33-015349, 33-015350, 33-015351, 33-015352, 33-015353, 33-015354, 33-015355, 33-015356, 33-015357, 33-015358, 33-015359, 33-015360, 33-015361, 33-015362, 33-015363, 33-015364, 33-015365, 33-015375, 33-015376, 33-015377, 33
RI-06989		2006	Glenn, Brian K.	Cultural Resources Assessment: Sun City Medical Center, McCall Coulevard, Sun City, Riverside County, California	BonTerra Consulting	
RI-07509	Submitter - CRM Tech No.1856	2007	Hogan, Michael and Bai "Tom" Tang	Archaeological Mitigation Report Site 33-011466 (CA-RIV-6844/H) Tract No. 29777, near the Community of Romoland, Riverside County, California	CRM Tech	33-011466
RI-07528	Other - Contract No. 00009.08	2008	Cooley, Theodore G.	Archaeological Survey Report for Southern California Edison Company Livermore 12 kV DSP Project, Riverside County, California (WO#6577-5345, AI#6-5350)	Jones and Stokes	33-009724, 33-015743
RI-07622	Submitter - CONTRACT NO. 2204A	2008	Hogan, M. and Tang, T.	PHASE I ARCHAEOLOGICAL ASSESSMENT: GREEN HERITAGE, LLC MENIFEE VALLEY AREA, RIVERSIDE COUNTY, CALIFORNIA	CRM TECH	
RI-07628		2002	Smith, Brian F. and Johnna L. Buysse	An Archaeological/Historical Study for Tract No. 29835 Menifee West GPA Project, Perris Valley, County of Riverside	Brian F. Smith and Associates	33-011464, 33-011465, 33-011466, 33-011467, 33-011468, 33-011469, 33-011470, 33-011471, 33-011472, 33-014464, 33-014465, 33-014466, 33-014467, 33-014468, 33-014469, 33-014470, 33-014471, 33-014472
RI-07634		2005	Smith, Brian F.	A Cultural Resources Study for the Bradberry Project	Brian F. Smith and Associates	33-014092, 33-014093
RI-07696		2007	Pierson, Larry J.	Results of Archaeological Monitoring at the Heritage Lake Project, Tentative Tract No. 32664, Unincorporated Riverside County, California (Negative Archaeological Monitoring Report)	Brian F. Smith and Associates	

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
RI-07876		2006	Pierson, Larry J.	Results of the Mitigation Monitoring and Reporting Program for the Heritage Lake Phase II Project, Perris Valley, County of Riverside. Specific Plan Number 301, Amendment #1.	Brian F. Smith and Associates	33-009725
RI-07927	Submitter - CRM TECH Contract No. 2276	2008	Bodmer, Clarence, Daniel Ballester, and Laura H. Shaker	Phase I Archaeological Assessment: Tentative Parcel Map No. 34998, Heritage Square Project, Menifee Valley Area, Riverside County, California	CRM TECH	
RI-07966		2008	Sara Clowery-Moreno and Brian F. Smith	A Phase I Archaeological Assessment for the Retaining Walls Project, Riverside County, California APNs 331-210-019, -020, and -021; CUP 03560	Brian F. Smith and Associates	
RI-08374	Other - Contract No. 4600000438; Project 00309.09	2009	William T. Eckhardt and Stacie Wilson	Final Cultural Resources Inventory of the Proposed SCE Devers to Valley Substation Project, Riverside County, California.	ICF Jones & Stokes	33-001395, 33-002830, 33-004715, 33-005066, 33-005069, 33-005072, 33-005073, 33-006727, 33-011265, 33-011280, 33-012278, 33-012310, 33-013499, 33-014967, 33-015102, 33-015103, 33-015104, 33-015105, 33-017577, 33-017578, 33-017579, 33-017580, 33-017582, 33
RI-08955	Submitter - Project No. 60247921.300	2013	Stacie Wilson and Jill Gibson	Confidiential, Final, Cultural Resources Survey Report For Thw Proposed Southern California Edison Valley South Subtransmission Project (VSSP), Riverside County, California	AECOM	33-001074, 33-001175, 33-004008, 33-004012, 33-011250, 33-011254, 33-011449, 33-012439, 33-012443, 33-012444, 33-013299, 33-013871, 33-014370, 33-014389, 33-015313, 33-015314, 33-015743, 33-016709, 33-016975, 33-021021, 33-021022, 33-021023, 33-021024, 33
RI-08980	Other - PN 15700.02	2010	Scott C. Justus, Matthew M. DeCarlo, and William T. Eckhardt	Final: Cultural Resources Inventory Of The Proposed DPV2 Construction Yards Riverside County California	ASM Affiliates	33-008313, 33-015033, 33-015035, 33-015743, 33-018078, 33-018079, 33-018080, 33-018113, 33-018114, 33-018115, 33-018116, 33-018277

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
RI-09002		2014	Bai "Tom" Tang	Re: Update to Historical/ Archaeological Resources Survey Report Menifee Valley North Drainage Facilities Project, Cities of Menifee and Perris; Unincorporated Homeland and Romoland Areas, Riverside County, California, CRM TECH Contract No. 1104/2771	CRM Tech	33-015743, 33-020504, 33-020644

APPENDIX 4

ISOLATE RECORD FORMS
33-024087

(Confidential)

State of California--The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary # 33-024087
HRI #
Trinomial
NRHP Status Code 6Z
Other Listings
Review Code Reviewer Date

Page 1 of 2 *Resource Name or # (Assigned by recorder) CRM TECH 2875 Iso-1

P1. Other Identifier:

***P2. Location:** √ **Not for Publication** **Unrestricted** ***a. County** Riverside

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad** Romoland, Calif. **Date** 1953, photorevised 1979
T5S; **R**3W; SE **1/4 of** NE **1/4 of Sec** 23; S.B. **B.M.**
Elevation: Approximately 1,460 feet above mean sea level

c. Address N/A **City** **Zip**

d. UTM: (Give more than one for large and/or linear resources) **Zone** 11 ;485,376 **mE**/ 3,721,579 **mN**
UTM Derivation: USGS Quad √ GPS (NAD83)

e. Other Locational Data: (e.g., parcel #, directions to resource, etc., as appropriate) Approx. 1,140 feet west of Menifee Road and 970 feet north of McCall Boulevard

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries) This isolate consists of a dark brown obsidian flake measuring 0.9x0.8x0.3 cm in size. It was found in a fallow agricultural field that was recently disked. Pressure flaking scars were observed on the flake.

***P3b. Resource Attributes:** (List attributes and codes) AP16: Other

***P4. Resources Present:** Building Structure Object Site District Element of District
√ Isolate Other

P5a. Photograph or Drawing (Photograph required for buildings, structures, and objects.)

P5b. Description of Photo: (view, date, accession #)

***P6. Date Constructed/Age and Sources:** Historic √ Prehistoric Both

***P7. Owner and Address:**

***P8. Recorded by:** (Name, affiliation, and address) Daniel Ballester CRM TECH, 1016 East Cooley Drive, Suite A/B, Colton, CA 92324

***P9. Date Recorded:** December 05, 2014

***P10. Survey Type:** (Describe) Intensive-level survey for CEQA-compliance purpose

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") Bai "Tom" Tang, Michael Hogan, and Deirdre Encarnación (2015): Phase 1 Cultural Resources Assessment: The Village at Menifee, City of Menifee, Riverside County, California

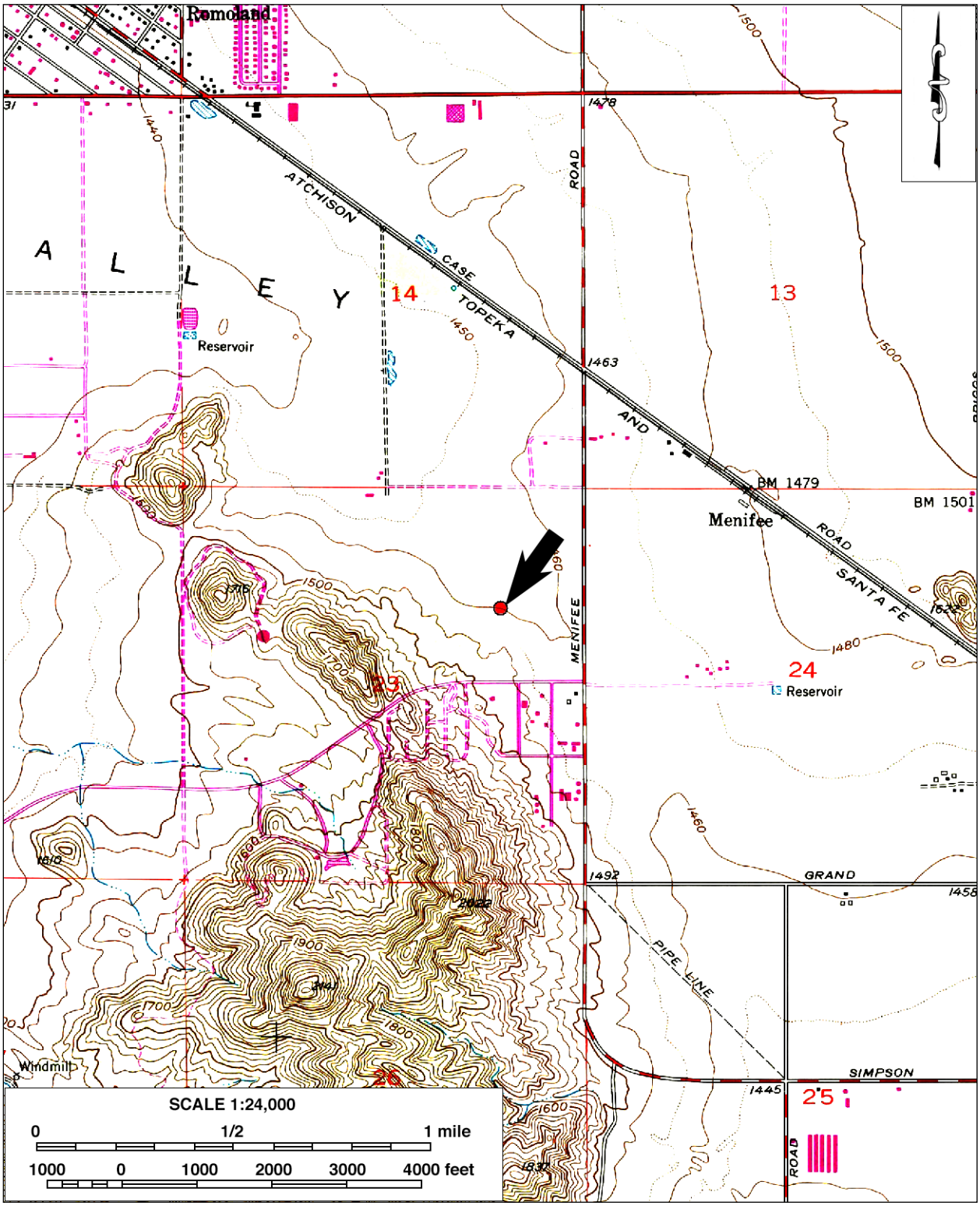
***Attachments:** None √ Location Map Sketch Map Continuation Sheet Building, Structure, and Object Record
Archaeological Record District Record Linear Resource Record Milling Station Record Rock Art Record
Artifact Record Photograph Record Other (List):

State of California--The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

Primary # 33-024087
HRI #
Trinomial

Page 2 of 2 *Resource Name or # (Assigned by recorder) CRM TECH 2875 Iso-1

*Map Name: Romoland, Calif. *Scale: 1:24,000 *Date of Map: 1953, photorevised 1979



DPR 523J (1/95)

*Required information

PHASE I CULTURAL RESOURCES ASSESSMENT:

THE VILLAGE AT MENIFEE

City of Menifee
Riverside County, California

Prepared on behalf of:

Don Carruth, North Bayport Industrial Park II, Inc.
2780 Skypark Drive, Suite 410, Torrance, CA 90505
(310) 326-2530

Prepared for:

City of Menifee
Community Development Department, Planning Division
29714 Haun Road, Menifee, CA 92586
(951) 672-6777

Prepared by:

Bai "Tom" Tang and Michael Hogan, Principal Investigators
Deirdre Encarnación, Archaeologist/Report Writer
CRM TECH
1016 East Cooley Drive, Suite A/B, Colton, CA 92324
(909) 824-6400

March 4, 2015
(Fieldwork completed on December 5, 2014)

CRM TECH Project No. 2875
Approximately 20 acres; USGS Romoland, Calif., 7.5' quadrangle
Section 23, T5S R3W, San Bernardino Baseline and Meridian
Assessor's Parcel Nos. 333-070-018, -019 and -053
Keywords: Perris/Menifee Valley; prehistoric isolate 33-024087 (lithic flake); no "historical resources" under CEQA

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MANAGEMENT SUMMARY

Between November 2014 and January 2015, at the request of North Bayport Industrial Park II, Inc., CRM TECH performed a Phase I cultural resources study on approximately 20 acres of vacant land in the City of Menifee, Riverside County, California. The subject property of the study consists of Assessor's Parcel Nos. 333-070-018, -019 and -053, located between Junipero Road and Menifee Road and to the north of McCall Boulevard, within the northeast quarter of Section 23, T5S R3W, San Bernardino Baseline and Meridian. The study is a part of the environmental review process for a proposed residential development project known as The Village at Menifee. The City of Menifee, as the lead agency for the project, required the study in compliance with the California Environmental Quality Act (CEQA).

As currently proposed, the project entails primarily the construction of an apartment complex with 260 residential units and a pool, along with associated improvements to streets and utility infrastructure, including the construction of water retention basins, parking lots, sidewalks, and landscaping. The purpose of the study is to provide the City of Menifee with the necessary information and analysis to determine whether the proposed project would cause substantial adverse changes to any "historical resources," as defined by CEQA, that may exist in or near the project area. In order to accomplish this objective, CRM TECH conducted a historical/archaeological resources records search, pursued historical background research, contacted Native American representatives, and carried out an intensive-level field survey.

As a result of the field survey, a prehistoric isolate, subsequently designated 33-024087 in the California Historical Resources Inventory, was found in a fallow agricultural field that had recently been cleared, near the western project boundary. The isolate consists of a single obsidian flake. By definition, the isolate does not qualify as an archaeological site due to the lack of contextual integrity. As such, 33-024087 is not considered a potential "historical resource," and requires no further consideration in the CEQA-compliance process. No other cultural resources, either historic or prehistoric in origin, were encountered throughout the course of the study.

Based on these findings, CRM TECH concludes that no "historical resources" are present within or adjacent to the project area. Accordingly, CRM TECH recommends to the City of Menifee a determination of *No Mitigation Needed* regarding cultural resources under the condition that, if buried cultural materials are encountered during any earth-moving operations associated with the project, all work in that area be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the finds.

INTRODUCTION AND SETTING

Between November 2014 and January 2015, at the request of North Bayport Industrial Park II, Inc., CRM TECH performed a Phase I cultural resources study on approximately 20 acres of vacant land in the City of Menifee, Riverside County, California (Fig. 1). The subject property of the study consists of Assessor's Parcel Nos. 333-070-018, -019 and -053, located between Junipero Road and Menifee Road and to the north of McCall Boulevard, within the northeast quarter of Section 23, T5S R3W, San Bernardino Baseline and Meridian (Fig. 2). The study is a part of the environmental review process for a proposed residential development project known as The Village at Menifee. The City of Menifee, as the lead agency for the project, required the study in compliance with the California Environmental Quality Act (CEQA).

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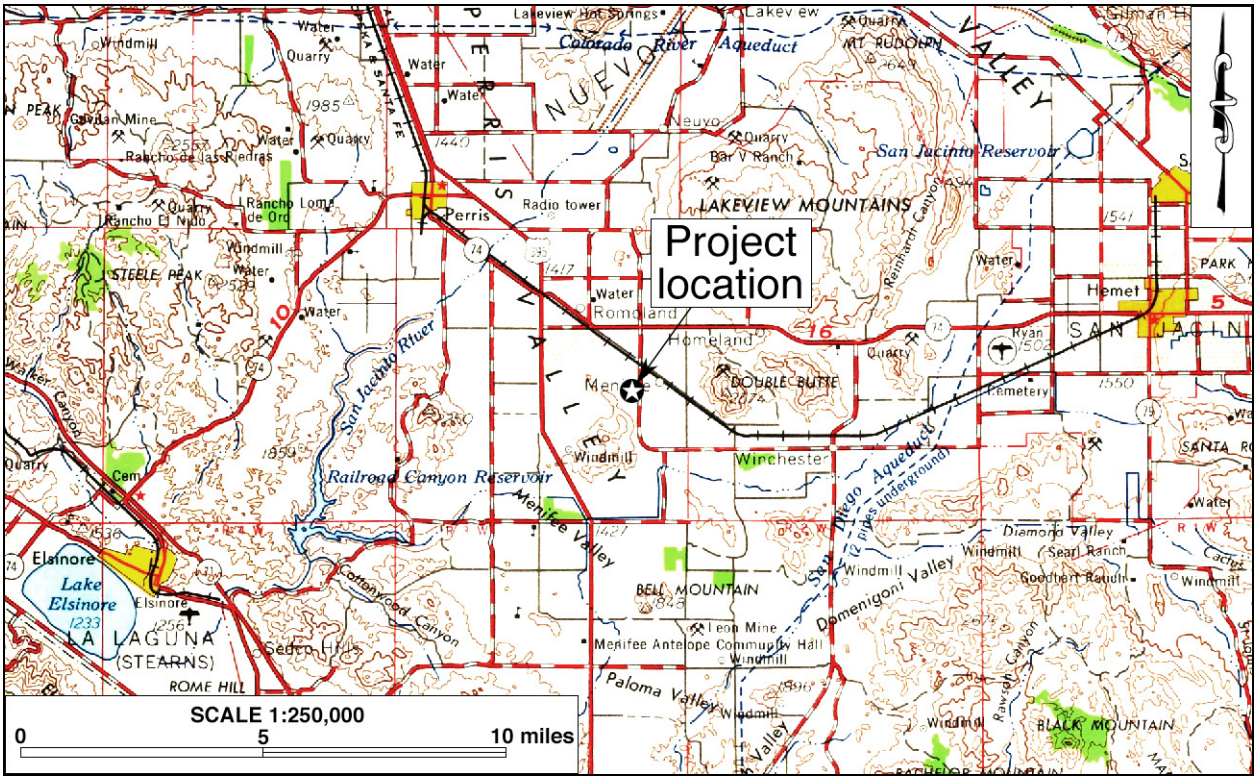


Figure 1. Project vicinity. (Based on USGS Santa Ana, Calif., 1:250,000 quadrangle [USGS 1979a])

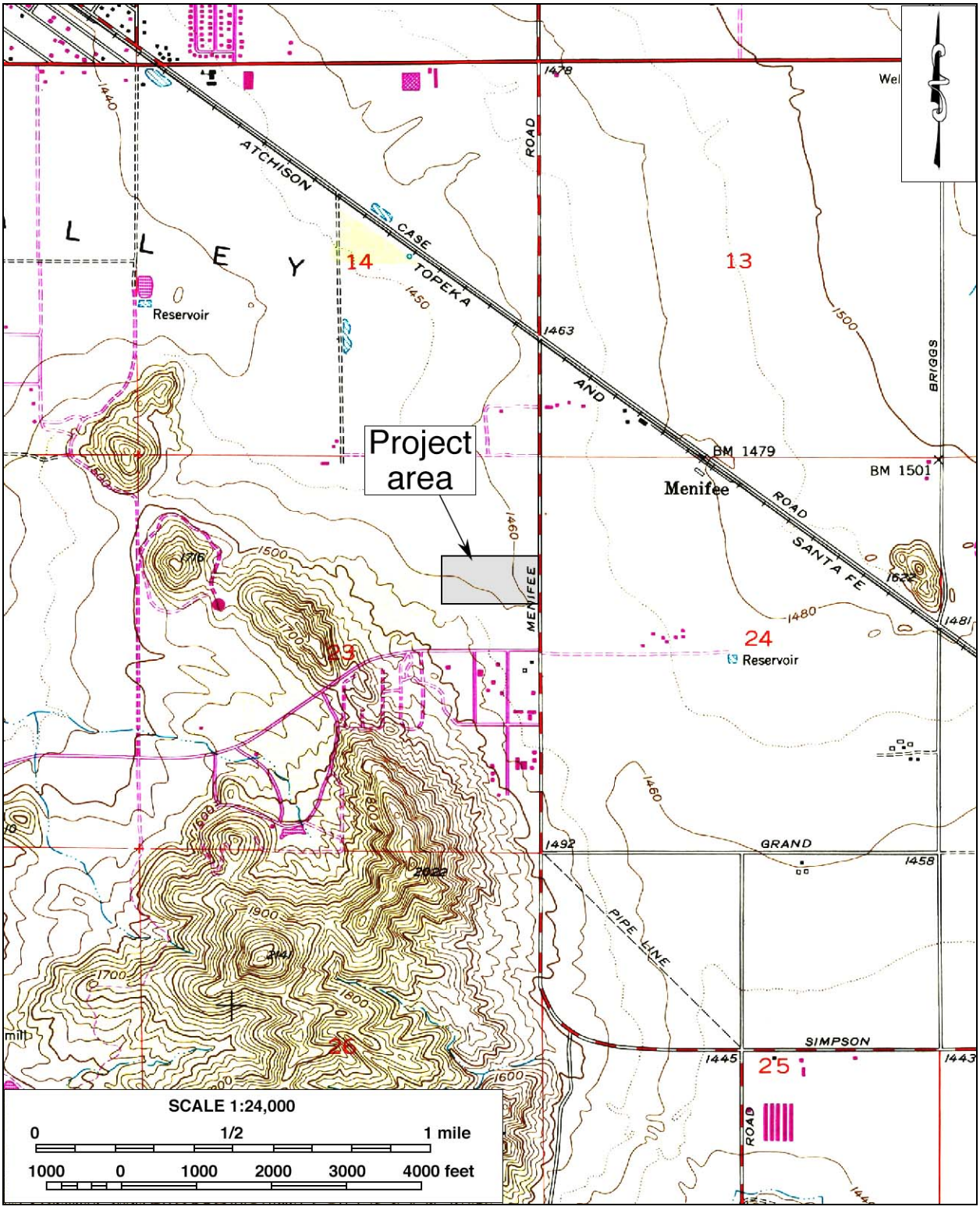


Figure 2. Project area. (Based on USGS Romoland, Calif., 1:24,000 quadrangle [USGS 1979b])

The study was completed under the direction of CRM TECH principal investigators Bai "Tom" Tang, M.A., and Michael Hogan, Ph.D. Other company personnel who participated in the study include archaeologist/report writer Deirdre Encarnación, M.A., and archaeologists Daniel Ballester, M.S., and Nina Gallardo, B.A. Further information on personnel qualifications is provided in Appendix 1.

The project area consists of rectangular-shaped tract of agricultural land that is currently under fallow. It is surrounded mostly by other parcels of open land, but adjoins a residential neighborhood to the east and an elementary school to the west, across Menifee Road and Junipero Road, respectively. Elevations on the property range approximately from 1,460 feet to 1,470 feet above mean sea level, with a slight westerly incline over a mostly level terrain. Vegetation is sparse, and includes mainly small grasses and shrubs. The ground surface has been extensively disturbed by possible past agricultural activities and recent disking (Fig. 3).

Geologically, the project area is located in the southeastern portion of the Perris Valley, a semi-arid inland alluvial valley that extends generally in a northwest-southeast direction. A number of isolated granitic mountains, such as the Lakeview Mountains and the Bernasconi Hills, separate the Perris Valley from the nearby Moreno, San Jacinto, and Menifee Valleys. These valleys are sub-basins of the San Jacinto watershed, one of the three major geographical subdivisions of the Santa Ana Basin. This valley complex is bounded on the northeast by the San Jacinto Mountains and on the southwest by the Santa Ana Mountains. The climate and environment of the surrounding area are typical of the southern California inland valleys, with temperatures in the region reaching over 100 degrees Fahrenheit in summer and dipping to near freezing in winter.

PREHISTORIC CONTEXT

ARCHAEOLOGY

It is widely acknowledged that human occupation in what is now the State of California began 8,000-12,000 years ago. In order to understand Native American cultures before European contact, archaeologists have devised chronological frameworks that endeavor to correlate the observable



Figure 3. Overview of the current condition of the project area, views to the west and the north. (Photographs taken on December 5, 2014)

technological and cultural changes in the archaeological record to distinct periods. Unfortunately, none of these chronological frameworks has been widely accepted, and none has been developed specifically for the so-called Inland Empire region of southern California, the nearest ones being for the Colorado Desert and Peninsular Ranges area (Warren 1984) and for the Mojave Desert (Warren and Crabtree 1986).

The development of an overall chronological framework for the region is hindered by the lack of distinct stratigraphic layers of cultural sequences that could be dated by absolute dating methods. Since results from archaeological investigations in this region have yet to be synthesized into an overall chronological framework, most archaeologists tend to follow a chronology adapted from a scheme developed by William J. Wallace in 1955 and modified by others (Wallace 1955; 1978; Warren 1968; Chartkoff and Chartkoff 1984; Moratto 1984). Although the beginning and ending dates of the different horizons or periods may vary, the general framework of prehistory in this region under this chronology consists of the following four periods:

- Early Hunting Stage (ca. 10000-6000 B.C.), which was characterized by human reliance on big game animals, as evidenced by large, archaic-style projectile points and the relative lack of plant-processing artifacts;
- Millingstone Horizon (ca. 6000 B.C.-1000 A.D.), when plant foods and small game animals came to the forefront of subsistence strategies, and from which a large number of millingstones, especially heavily used, deep-basin metates, were left;
- Late Prehistoric Period (ca. 1000-1500 A.D.), during which a more complex social organization, a more diversified subsistence base—as evidenced by smaller projectile points, expedient milling stones and, later, pottery—and regional cultures and tribal territories began to develop;
- Protohistoric Period (ca. 1500-1700s A.D.), which ushered in long-distance contact with Europeans and led to the historic period.

ETHNOHISTORY

The Perris Valley has long been a part of the homelands of the Luiseño Indians, a Takic-speaking people whose territory extended from present-day Riverside to Escondido and Oceanside. The name of the group derived from Mission San Luis Rey, which held jurisdiction over most of the traditional Luiseño territory during the mission period. Luiseño history, as recorded in traditional songs, tells the creation story from the birth of the first people, the *kaamalam*, to the sickness, death, and cremation of *Wiyoot*, the most powerful and wise one, at Lake Elsinore. In modern anthropological literature, the leading sources on Luiseño culture and history are Kroeber (1925), Strong (1929), and Bean and Shipek (1978).

Anthropologists have divided the Luiseño into several autonomous lineages or kin groups, which represented the basic political unit among most southern California Indians. According to Bean and Shipek (1978:551), each Luiseño lineage possessed a permanent base camp, or village, on the valley floor and another in the mountain regions for acorn collection. Luiseño villages were made up of family members and relatives, where chiefs of the village inherited their rank and each village owned its own land. Villages were usually located in sheltered canyons or near year-round sources of freshwater, always near subsistence resources.

The Luiseño exploited nearly all resources of the environment in a highly developed seasonal mobility system. The Luiseño people were primarily hunters and gatherers. They collected seeds, roots, wild berries, acorns, wild grapes, strawberries, wild onions, and prickly pear cacti, and hunted deer, elks, antelopes, rabbits, wood rats, and a variety of insects. Bows and arrows, atlatls or spear throwers, rabbit sticks, traps, nets, clubs, and slings were the main hunting tools. Each lineage had exclusive hunting and gathering rights in their procurement ranges. These boundaries were respected and only crossed with permission (Bean and Shipek 1978:551).

It is estimated that when Spanish colonization of Alta California began in 1769, the Luiseño had approximately 50 active villages with an average population of 200 each, although other estimates place the total Luiseño population at 4,000-5,000 (Bean and Shipek 1978:557). Some of the villages were forcefully moved to the Spanish missions, while others were largely left intact (*ibid.*:558). Ultimately, Luiseño population declined rapidly after European contact because of diseases such as small pox, harsh living conditions at the missions and, later, on the Mexican ranchos, where the Native people often worked as seasonal ranch hands.

After the American annexation of Alta California, the large number of non-Native settlers further eroded the foundation of the traditional Luiseño society. During the latter half of the 19th century, almost all of the remaining Luiseño villages were displaced, their occupants eventually removed to the various reservations. Today, the nearest Native American groups of Luiseño heritage live on the Soboba, Pechanga, and Pala Indian Reservations.

HISTORIC CONTEXT

REGIONAL OVERVIEW

In California, the so-called "historic period" began in 1769, when an expedition sent by the Spanish authorities in Mexico founded Mission San Diego, the first European outpost in Alta California. For several decades after that, Spanish colonization activities were largely confined to the coastal regions, and left little impact on the arid hinterland of the territory. Although the first explorers, including Pedro Fages and Juan Bautista de Anza, traveled through the Perris and San Jacinto Valleys as early as 1772-1774, no Europeans were known to have settled in the vicinity until the beginning of the 19th century (Gunther 1984).

Situated deep in the arid hinterland of Alta California, the Perris Valley received little influence from the Spanish/Mexican colonization activities in the coastal regions, although the area was nominally under the control of Mission San Luis Rey, established near present-day Oceanside in 1798 (Gunther 1984). After secularization of the mission system in the 1830s, the Mexican government issued several large land grants in what is now southwestern Riverside County to various prominent citizens in the province. The area around the project site, however, was not included in any of them, and remained public land when the U.S. annexed California in 1848 (BLM n.d.).

Around 1880, S. Menifee Wilson located a gold quartz mine about eight miles south of present-day Perris, and named it the Menifee Quartz Lode (Gunther 1984:320). The area around the mine thus came to be known as the Menifee Valley. Other miners began to arrive in the valley, and the

Menifee Mining District was soon organized. By the time Riverside County was created in 1893, Menifee had also become an important grain- and hay-growing area (*ibid*). Menifee continued as a farming and mining community well into the 20th century, however, in more recent decades residential and commercial development has increasingly becoming the driving force in regional growth. As the ongoing urbanization transformed the socioeconomic landscape of the valley, in October 2008, Menifee incorporated as the 26th city in Riverside County.

THE PROJECT AREA

Historic maps consulted for this study indicate that the project area apparently remained unsettled and undeveloped, except perhaps as agricultural fields, throughout the historic period, and the only man-made features noted prior to the 1970s were a few roads passing through (Figs. 2, 4-7). In the 1850s, when the U.S. government conducted the first systematic land surveys in the present-day Menifee area, no man-made features were observed in or near the project area (Fig. 4). In 1894, the project area became part of a large railroad land grant that the U.S. government awarded the Southern Pacific Company (BLM n.d.).

By the late 1890s, the forerunner of present-day Menifee Road had come into being along the eastern boundary of the project area, with other, secondary roads branching off across the project area and leading to the northwest (Fig. 5). Despite the gradual development of the Menifee area between the 1890s and the 1950s, no buildings or other indications of settlement or land development activities were noted on this property (Figs. 5-7). As late as 2005, Menifee Road remained the only notable man-made feature within or adjacent to the project boundaries (Fig. 2; NETR Online 1967-2005).

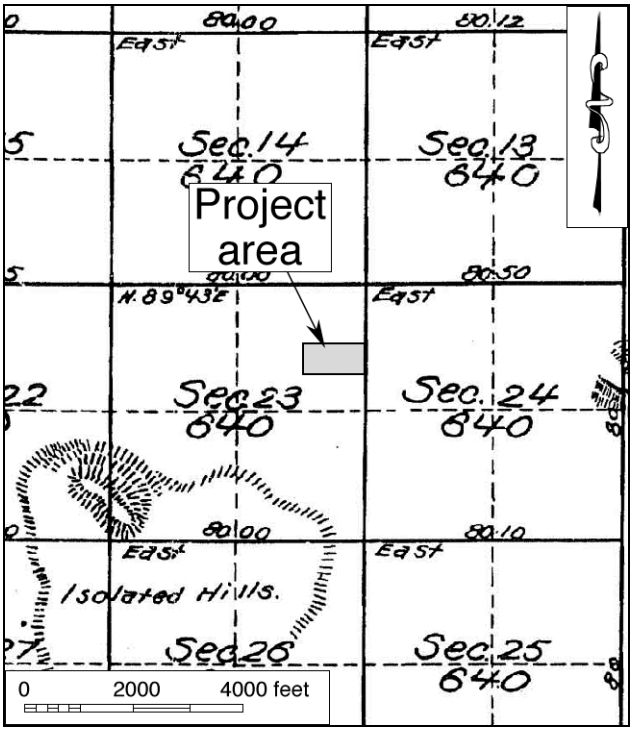


Figure 4. The project area and vicinity in 1853. (Source: GLO 1895)

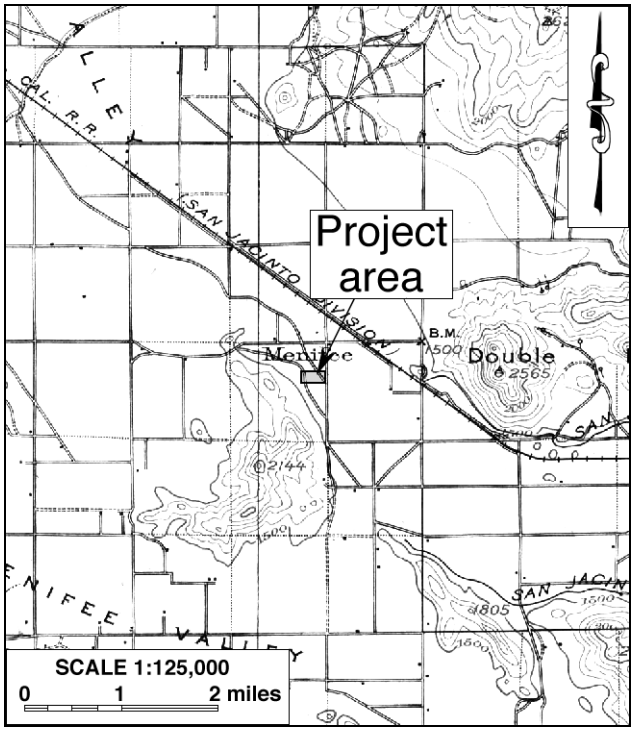


Figure 5. The project area and vicinity in 1897-1898. (Source: USGS 1901)

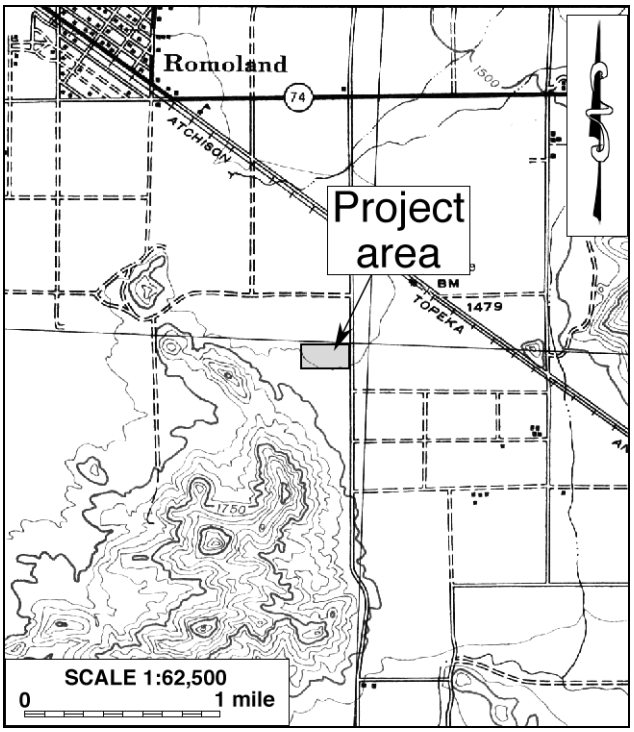


Figure 6. The project area and vicinity in 1939. (Source: USGS 1942)

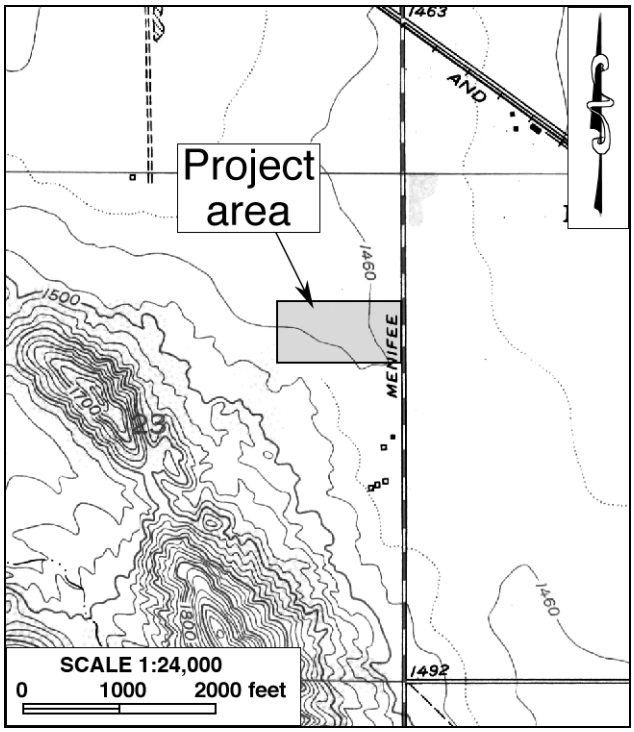


Figure 7. The project area and vicinity in 1951. (Source: USGS 1953)

RESEARCH DESIGN

Scientific research should be directed by a theoretical orientation that is geared toward gathering data to answer questions of current research interest. While numerous theoretical orientations have been put forward and used to guide archaeological research and to improve data-collecting efforts, the cultural ecology approach still tends to be the most useful paradigm in archaeological endeavors, although it is often used in conjunction with newer models. Basically, the cultural ecology approach to understanding cultural development contends that people develop behavioral patterns in order to exploit the resources of the area by means of particular technologies. It also assumes that there is interrelationship of these technologies, the environment, survival, and other aspects of the culture.

Since archaeology deals mostly with the cultural remains that are left long after the people are gone, this theoretical orientation has obvious advantages for archaeological research, although it is left to the archaeologist to determine the extent to which the behavior patterns used to exploit the environment affect other aspects of culture. Because of its continuing usefulness, the cultural ecology theoretical orientation is the basis of the historical/archaeological investigation used in this study. In practice, a research design serves to identify research issues and to illuminate new information for the purpose of evaluating the significance of cultural resources present within a study area. While no overarching research design has been established for this part of Riverside County, a standard set of research questions, or research domains, can be applied to historical/archaeological investigations in the region, especially for Phase I studies such as this.

The primary goal of a Phase I survey is to identify any prehistoric or historic-period cultural resources that may be present within the study area. This identification process generally includes a historical/archaeological resources records search, historical background research, Native American contacts, and a field inspection. While little detailed data may be available from the research methods employed during Phase I studies, some types of data gathered during the investigation may be used to address research issues, at least on a basic level. For instance, just the presence of cultural resources on a property indicates that people used the area. Other research questions, such as those posited below, can be addressed during Phase I studies only if certain types of artifacts or features are found within or near the study area.

- Is there any evidence that important events took place on the property or that the property is associated with a historically important person?
- Can anything be learned regarding the time period the area was used? Can it be determined whether people used the area during early or late prehistoric times, or during the historic period?
- Can anything be learned about the duration of the use of the land? Was the land used continuously for a long period, was it used only briefly, or was it used repeatedly over time?
- Can anything be learned about the subsistence strategies of the people who used the land? Is there any evidence visible on the surface that indicates what food resources were being processed and/or consumed?
- Would any of the information gathered during a Phase I study shed light on settlement patterns? Could activities in the study area be related with broader patterns of human habitation of the region? Did the people live on the property or use it only for resource procurement? If they lived on the property, was it a dense or sparse population? Does occupation of the subject property disclose any information regarding settlement strategies or preferences?
- Are there historical/archaeological data to be obtained about trade, travel, or cultural interactions?

In addition, a research design should also outline major themes in the prehistory and history of a region or specific area, so that any cultural resources encountered during a Phase I study could be evaluated within the proper context. Based on the prehistoric, ethnohistoric, and historic contexts discussed above, the following themes can be established for past human activities in the vicinity of the current project area:

- Native American land use during the Paleoindian, Early Archaic, Late Archaic, and Late Prehistoric Periods;
- Early European and American exploration of inland southern California during the early and mid-19th century;
- Travel and transportation across inland southern California;
- Settlement and agricultural growth in the Perris/Menifee Valleys during late 19th and early 20th centuries;
- Growth of the Perris/Menifee Valley region during the 20th century and suburbanization in the post-WWII era.

METHODS

RECORDS SEARCH

On December 3, 2014, Nina Gallardo conducted the records search at the Eastern Information Center (EIC), University of California, Riverside. During the records search, Gallardo examined maps and records on file at the EIC for previously identified cultural resources and existing cultural resources reports within a one-mile radius of the project area. Previously identified cultural resources include properties designated as California Historical Landmarks, Points of Historical Interest, or Riverside County Landmarks, as well as those listed in the National Register of Historic Places, the California Register of Historical Resources, or the California Historical Resources Inventory.

HISTORICAL BACKGROUND RESEARCH

Historical background research for this study was conducted by Bai "Tom" Tang on the basis of published literature in local and regional history, the archival records of the U.S. Bureau of Land Management (BLM), and historic maps and aerial photographs of the project vicinity. Among maps consulted for this study were U.S. General Land Office's (GLO) land survey plat maps dated 1895 and U.S. Geological Survey's (USGS) topographic maps dated 1901-1979. These maps are collected at the Science Library of the University of California, Riverside, and the California Desert District of the BLM, located in Moreno Valley. Aerial photographs of the project area are available at www.historicaerial.com. Findings from these sources are incorporated into the "Historic Context" section above.

NATIVE AMERICAN CONSULTATION

On November 21, 2014, CRM TECH submitted a written request to the State of California's Native American Heritage Commission for a records search in the commission's sacred lands file. Following the Native American Heritage Commission's recommendations, CRM TECH contacted 19 Native American representatives in the region in writing on December 16 to solicit local Native American input regarding any potential cultural resources concerns over the proposed project. Additionally, the Pechanga Band of Luiseño Indians and the Soboba Band of Luiseño Indians, the two Native American groups located closest to the project location, were invited to participate in the field survey. The correspondences between CRM TECH and the Native American representatives are attached to this report in Appendix 2.

FIELD SURVEY

On December 5, 2014, Daniel Ballester carried out the intensive-level, on-foot field survey of the project area. The survey was completed by walking a series of parallel east-west transects spaced 15 meters (approx. 50 feet) apart. In this way, the ground surface in the entire project area was systematically and carefully examined for any evidence of human activities dating to the prehistoric or historic period (i.e., 50 years ago or older). Ground visibility was good (80%) to excellent (90%) throughout the project area due to recent weed abatement activities.

RESULTS

PREVIOUS CULTURAL RESOURCES STUDIES IN THE VICINITY

The records search results indicate that the project area was surveyed for cultural resources in 2003 (Drover 2003, #5627 in Fig. 8), but no cultural resources had been recorded on the property prior to this study. The 2003 survey, covering a total of 160 acres, was conducted in anticipation of a residential development project that never materialized. Another past survey, completed in 2008, occurred on a proposed power transmission line along Menifee Road, adjacent to the current project area (Cooley 2008, #7528 in Fig. 8).

Outside the project area but within a one-mile radius, more than 30 additional studies have been reported to the EIC (Fig. 8). A bibliography of these past studies is attached to this report in Appendix 3. As a result of these studies, 21 historical/archaeological sites were previously recorded within the one-mile scope of the records search, as listed in Table 1. None of these sites was found in the immediate vicinity of the project area, and thus none of them requires further consideration during this study.

Table 1. Previously Recorded Cultural Resources within the Scope of the Records Search

Site No.	Recorded by/Date	Description
33-002221	Elliot 1931	Homestead, ca. 1848
33-003429	Drover 1986	Bedrock milling feature
33-009722	Brian F. Smith & Assoc. nd.	Historic-period homestead
33-009723	Brian F. Smith & Assoc. nd.	Historic-period refuse scatter
33-009724	Brian F. Smith & Assoc. nd.	Historic-period farm features
33-009725	Brian F. Smith & Assoc. nd.	Concrete foundations with refuse scatter
33-009726	Brian F. Smith & Assoc. nd.	Stockyard/cattle staging area
33-011464	Pierson 2002	Historic-period refuse dump
33-011465	Buysse 2002	Bedrock milling feature
33-011466	Pierson 2002	Bedrock milling feature with historic-period refuse scatter
33-011467	Buysse 2002	Bedrock milling features with sparse lithic scatter
33-011468	Pierson 2002	Bedrock milling features with historic-period refuse scatter
33-011469	Buysse 2002	Bedrock milling features
33-011470	Pierson 2002	Bedrock milling features with historic-period refuse scatter
33-011471	Pierson 2002	Bedrock milling features with artifacts and historic-period refuse scatter
33-011472	Buysse 2002	Bedrock milling feature
33-012535	Lambert 2003	Bedrock milling features with lithic scatter
33-012536	Lambert 2003	Scattered chipped-stone and groundstone artifacts
33-014092	Brian F. Smith & Assoc. 2005	Bedrock milling features
33-014093	Brian F. Smith & Assoc. 2005	Bedrock milling features with sparse lithic flake scatter
33-015743	Easter and Beedle 2005	San Jacinto Valley Railway

CULTURAL RESOURCES IN THE PROJECT AREA

During the field survey, a prehistoric isolate–i.e., a locality with fewer than three artifacts–was found in a fallow agricultural field that had recently been cleared, near the western project boundary. The isolate consists of a single obsidian flake that measures approximately 0.9x0.8x0.3 centimeters in

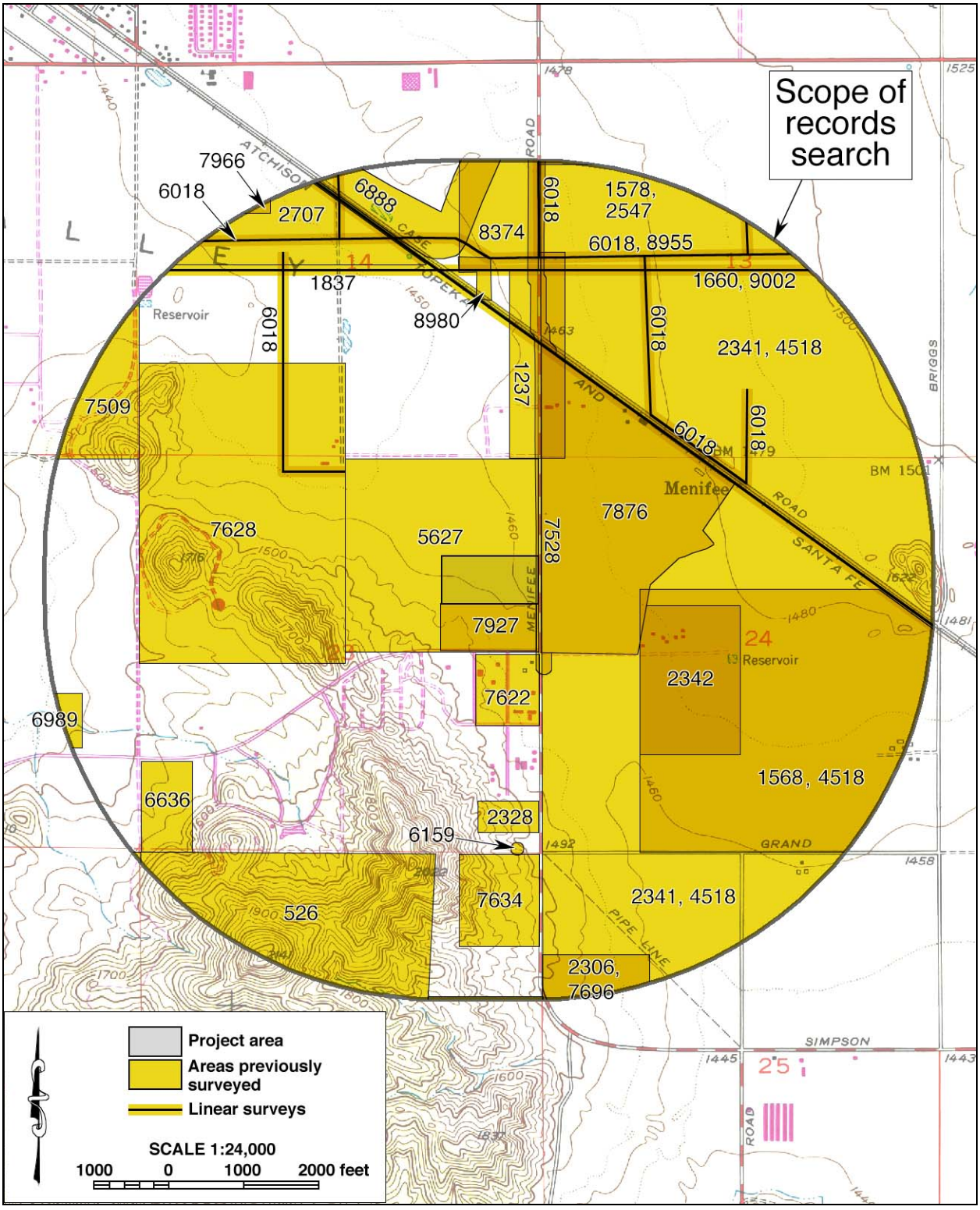


Figure 8. Previous cultural resources studies in the vicinity of the project area, listed by EIC file number. Locations of historical/archaeological sites are not shown as a protective measure.



Figure 9. Obsidian flake found within project area (Isolate 33-024087).

dimension and exhibits pressure flaking scars on the surface (Fig. 9). It was subsequently designated by the EIC as 33-024087 in the California Historical Resources Inventory.

No other evidence of human activities dating to the prehistoric or historic period was found within or adjacent to the project boundaries. Modern trash was observed over much of the property, especially along the eastern and western boundaries, but none of the items is of any historical or archaeological interest. The ground surface within the project area has been extensively disturbed by recent vegetation removal operations, and presumably by past agricultural activities.

NATIVE AMERICAN INPUT

In response to CRM TECH's inquiry, the NAHC reported in a letter dated December 11, 2014, that a record search in the Sacred Lands File failed to indicate the presence of Native American sacred places/sites in the project area. Nevertheless, the commission recommended that local Native American groups be contacted for further information. For that purpose, the commission provided a list of potential contacts in the region.

Upon receiving the NAHC's response, on December 16, 2014, CRM TECH sent written requests for comments to all 18 individuals on the referral list and the organizations they represent. In addition, Rose Duro, Cultural Committee Chairman for the Rincon Band of Mission Indians, was also contacted. As of this time, two of the tribal representatives have responded in writing (see App. 2).

Chris Devers, Cultural Clerk for the Pauma Band of Luiseño Indians, replied by e-mail on December 23, 2014, stating that the tribe was not aware of any Native American cultural resources in the project area but would recommend monitoring during grading activities on the property due to the potential for buried cultural remains. The tribe also requested to continue receiving cultural resources information regarding this project.

On December 31, 2014, Shasta Gaughen, Tribal Historic Preservation Officer for the Pala Band of Mission Indians, responded in writing and stated that the project area lay beyond the tribe's Traditional Use Area. Therefore, the Pala Band wished to defer to other tribes located in closer in proximity to the project area.

DISCUSSION

The purpose of this study is to identify any cultural resources within or adjacent to the project area, and to assist the City of Menifee in determining whether such resources meet the official definition of "historical resources," as provided in the California Public Resources Code, in particular CEQA.

According to PRC §5020.1(j), "'historical resource' includes, but is not limited to, any object, building, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California." More specifically, CEQA guidelines state that the term "historical resources" applies to any such resources listed in or determined to be eligible for listing in the California Register of Historical Resources, included in a local register of historical resources, or determined to be historically significant by the Lead Agency (Title 14 CCR §15064.5(a)(1)-(3)).

Regarding the proper criteria for the evaluation of historical significance, CEQA guidelines mandate that "a resource shall be considered by the lead agency to be 'historically significant' if the resource meets the criteria for listing on the California Register of Historical Resources" (Title 14 CCR §15064.5(a)(3)). A resource may be listed in the California Register if it meets any of the following criteria:

(1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
(2) Is associated with the lives of persons important in our past.
(3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
(4) Has yielded, or may be likely to yield, information important in prehistory or history. (PRC §5024.1(c))

In summary of the research results presented above, 33-024087, a prehistoric isolate consisting of a single obsidian flake, is the only cultural resource known to be present within or adjacent to the project area. By definition, the isolate does not qualify as an archaeological site due to the lack of contextual integrity. As such, 33-024087 is not considered a potential "historical resource," and requires no further consideration in the CEQA-compliance process. No other cultural resources, either historic or prehistoric in origin, were encountered throughout the course of the study. Based on these findings, and in light of the criteria listed above, the present study concludes that *no historical resources exist within or adjacent to the project area*.

RECOMMENDED MITIGATION

CEQA establishes that "a project that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment" (PRC §21084.1). "Substantial adverse change," according to PRC §5020.1(q), "means demolition,

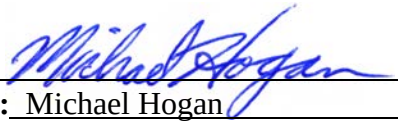
destruction, relocation, or alteration such that the significance of a historical resource would be impaired."

As no "historical resources," as defined by CEQA, were encountered within or adjacent to the project area during this study, CRM TECH recommends to the City of Menifee a determination of *No Mitigation Needed* regarding cultural resources under the condition that, if buried cultural materials are encountered during any earth-moving operations associated with the project, all work in that area be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the finds.

CERTIFICATION

I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this archaeological report, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

DATE: January 22, 2015

SIGNED: 

Print Name: Michael Hogan

Riverside County Registration No.: 113

REFERENCES

Bean, Lowell John, and Florence C. Shipek
1978 Luiseño. In Robert F. Heizer (ed.): *Handbook of North American Indians*, Vol. 8: *California*; pp. 550-563. Smithsonian Institution, Washington, D.C.

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n.d. Online database of U.S. land patents. Http://www.glorecords.blm.gov.

Chartkoff, Joseph L., and Kerry Kona Chartkoff
1984 *The Archaeology of California*. Stanford University Press, Stanford, California.

Cooley, Theodore G.
2008 Archaeological Survey Report for Southern California Edison Company Livermore 12kV DSP Project, Riverside County, California. On file (RI-7528), Eastern Information Center, University of California, Riverside.

Drover, Christopher E.
2003 A Cultural Resource Inventory: An Archaeological Assessment of Romoland 64 Project, Romoland, Riverside County, California. On file (RI-5627), Eastern Information Center, University of California, Riverside.

GLO (General Land Office, U.S. Department of the Interior)
1895 Plat Map: Township No. 5 South Range No. 3 West, San Bernardino Meridian; surveyed in 1853.

Gunther, Jane Davies
1984 *Riverside County, California, Place Names: Their Origins and Their Stories*. Jane Davies Gunther, Riverside.

Kroeber, Alfred L.
1925 *Handbook of the Indians of California*. Bureau of American Ethnology Bulletin 78. Government Printing Office, Washington, D.C.

Moratto, Michael J. (ed.)
1984 *California Archaeology*. Academic Press, Orlando, Florida.

NETR Online
1967-2005 Aerial photographs of the project vicinity, taken in 1967, 1978, 1996, 2002, and 2005. Http://www.historicaerials.com.

Strong, William Duncan
1929 *Aboriginal Society in Southern California*. University of California Publications in American Archaeology and Ethnology 26. Reprinted by Malki Museum Press, Banning, California, 1972.

USGS (United States Geological Survey, U.S. Department of the Interior)
1901 Map: Elsinore, Calif. (30', 1:125,000); surveyed in 1897-1898.
1942 Map: Murrieta, Calif. (15', 1:62,500); aerial photographs taken in 1939.
1953 Map: Romoland, Calif. (7.5', 1:24,000); aerial photographs taken in 1951.
1979a Map: Santa Ana, Calif. (1:250,000); 1959 edition revised.
1979b Map: Romoland, Calif. (7.5', 1:24,000); 1953 edition photorevised in 1976.

Wallace, William J.
1955 A Suggested Chronology for Southern California Coastal Archaeology. *Southwestern Journal of Archaeology* 11(3):214-230.
1978 Post-Pleistocene Archeology, 9,000 to 2,000 B.C. In Robert F. Heizer (ed.): *Handbook of North American Indians*; Vol. 8: *California*; pp. 25-36. Smithsonian Institution, Washington, D.C.

Warren, Claude N.
1968 Cultural Traditions and Ecological Adaptations on the Southern California Coast. In Cynthia Irwin-Williams (ed.): *Archaic Prehistory in Western United States*; pp. 1-14. Eastern New Mexico University Contributions in Anthropology 1(3). Portales, New Mexico.
1984 The Desert Region. In Michael J. Moratto (ed.): *California Archaeology*; pp. 339-430. Academic Press, Orlando, Florida.

Warren, Claude N., and Robert H. Crabtree
1986 Prehistory of the Southwestern Area. In Warren L. D'Azevedo (ed.): *Handbook of North American Indians*, Vol. 11: *Great Basin*; pp. 183-193. Smithsonian Institution, Washington, D.C.

APPENDIX 1:
PERSONNEL QUALIFICATIONS

PRINCIPAL INVESTIGATOR/HISTORIAN
Bai "Tom" Tang, M.A.

Education

1988-1993	Graduate Program in Public History/Historic Preservation, UC Riverside.
1987	M.A., American History, Yale University, New Haven, Connecticut.
1982	B.A., History, Northwestern University, Xi'an, China.
2000	"Introduction to Section 106 Review," presented by the Advisory Council on Historic Preservation and the University of Nevada, Reno.
1994	"Assessing the Significance of Historic Archaeological Sites," presented by the Historic Preservation Program, University of Nevada, Reno.

Professional Experience

2002-	Principal Investigator, CRM TECH, Riverside/Colton, California.
1993-2002	Project Historian/Architectural Historian, CRM TECH, Riverside, California.
1993-1997	Project Historian, Greenwood and Associates, Pacific Palisades, California.
1991-1993	Project Historian, Archaeological Research Unit, UC Riverside.
1990	Intern Researcher, California State Office of Historic Preservation, Sacramento.
1990-1992	Teaching Assistant, History of Modern World, UC Riverside.
1988-1993	Research Assistant, American Social History, UC Riverside.
1985-1988	Research Assistant, Modern Chinese History, Yale University.
1985-1986	Teaching Assistant, Modern Chinese History, Yale University.
1982-1985	Lecturer, History, Xi'an Foreign Languages Institute, Xi'an, China.

Honors and Awards

1988-1990	University of California Graduate Fellowship, UC Riverside.
1985-1987	Yale University Fellowship, Yale University Graduate School.
1980, 1981	President's Honor List, Northwestern University, Xi'an, China.

Cultural Resources Management Reports

Preliminary Analyses and Recommendations Regarding California's Cultural Resources Inventory System (With Special Reference to Condition 14 of NPS 1990 Program Review Report). California State Office of Historic Preservation working paper, Sacramento, September 1990.

Numerous cultural resources management reports with the Archaeological Research Unit, Greenwood and Associates, and CRM TECH, since October 1991.

PRINCIPAL INVESTIGATOR/ARCHAEOLOGIST
Michael Hogan, Ph.D., RPA*

Education

1991	Ph.D., Anthropology, University of California, Riverside.
1981	B.S., Anthropology, University of California, Riverside; with honors.
1980-1981	Education Abroad Program, Lima, Peru.
2002	Section 106—National Historic Preservation Act: Federal Law at the Local Level. UCLA Extension Course #888.
2002	"Recognizing Historic Artifacts," workshop presented by Richard Norwood, Historical Archaeologist.
2002	"Wending Your Way through the Regulatory Maze," symposium presented by the Association of Environmental Professionals.
1992	"Southern California Ceramics Workshop," presented by Jerry Schaefer.
1992	"Historic Artifact Workshop," presented by Anne Duffield-Stoll.

Professional Experience

2002-	Principal Investigator, CRM TECH, Riverside/Colton, California.
1999-2002	Project Archaeologist/Field Director, CRM TECH, Riverside.
1996-1998	Project Director and Ethnographer, Statistical Research, Inc., Redlands.
1992-1998	Assistant Research Anthropologist, University of California, Riverside
1992-1995	Project Director, Archaeological Research Unit, U. C. Riverside.
1993-1994	Adjunct Professor, Riverside Community College, Mt. San Jacinto College, U.C. Riverside, Chapman University, and San Bernardino Valley College.
1991-1992	Crew Chief, Archaeological Research Unit, U. C. Riverside.
1984-1998	Archaeological Technician, Field Director, and Project Director for various southern California cultural resources management firms.

Research Interests

Cultural Resource Management, Southern Californian Archaeology, Settlement and Exchange Patterns, Specialization and Stratification, Culture Change, Native American Culture, Cultural Diversity.

Cultural Resources Management Reports

Author and co-author of, contributor to, and principal investigator for numerous cultural resources management study reports since 1986.

Memberships

* Register of Professional Archaeologists; Society for American Archaeology; Society for California Archaeology; Pacific Coast Archaeological Society; Coachella Valley Archaeological Society.

PROJECT ARCHAEOLOGIST/REPORT WRITER
Deirdre Encarnación, M.A.

Education

2003	M.A., Anthropology, San Diego State University, California.
2000	B.A., Anthropology, minor in Biology, with honors; San Diego State University, California.
1993	A.A., Communications, Nassau Community College, Garden City, N.Y.
2001	Archaeological Field School, San Diego State University.
2000	Archaeological Field School, San Diego State University.

Professional Experience

2004-	Project Archaeologist/Report Writer, CRM TECH, Riverside/Colton, California.
2001-2003	Part-time Lecturer, San Diego State University, California.
2001	Research Assistant for Dr. Lynn Gamble, San Diego State University.
2001	Archaeological Collection Catalog, SDSU Foundation.

PROJECT ARCHAEOLOGIST
Nina Gallardo, B.A.

Education

2004 B.A., Anthropology/Law and Society, University of California, Riverside.

Professional Experience

2004- Project Archaeologist, CRM TECH, Riverside/Colton, California.

- Surveys, excavations, construction monitoring, field recordation, mapping, records searches, and Native American liaison.

Honors and Awards

2000-2002 Dean's Honors List, University of California, Riverside.

PROJECT ARCHAEOLOGIST/FIELD DIRECTOR
Daniel Ballester, M.S.

Education

2013	M.S., Geographic Information System (GIS), University of Redlands, California.
1998	B.A., Anthropology, California State University, San Bernardino.
1997	Archaeological Field School, University of Las Vegas and University of California, Riverside.
1994	University of Puerto Rico, Rio Piedras, Puerto Rico.
2007	Certificate in Geographic Information Systems (GIS), California State University, San Bernardino.
2002	"Historic Archaeology Workshop," presented by Richard Norwood, Base Archaeologist, Edwards Air Force Base; presented at CRM TECH, Riverside, California.

Professional Experience

2002-	Field Director/GIS Specialist, CRM TECH, Riverside/Colton, California.
1999-2002	Project Archaeologist, CRM TECH, Riverside, California.
1998-1999	Field Crew, K.E.A. Environmental, San Diego, California.
1998	Field Crew, A.S.M. Affiliates, Encinitas, California.
1998	Field Crew, Archaeological Research Unit, University of California, Riverside.

APPENDIX 2

CORRESPONDENCE WITH NATIVE AMERICAN REPRESENTATIVES*

* A total of 19 local Native American representatives were contacted; a sample letter is included in this report.

Sacred Lands File & Native American Contacts List Request

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691
(916) 373-3710
(916) 373-5471 – Fax
nahc@nahc.ca.gov

Project: The Village at Junipero; APNs 333-070-018, -019, and -053 (CRM TECH Contract No. 2875)

County: Riverside

USGS Quadrangle Name: Romoland, Calif.

Township 5 South **Range** 3 West SB **BM; Section(s)** 23

Company/Firm/Agency: CRM TECH

Contact Person: Nina Gallardo

Street Address: 1016 E. Cooley Drive, Suite A/B

City: Colton, CA **Zip:** 92324

Phone: (909) 824-6400 **Fax:** (909) 824-6405

Email: Ngallardo@crmtech.us

Project Description: The primary component of the project is a residential development on 20 acres of land located near the northwest corner of Menifee Road and McCall Boulevard in the City of Menifee, Riverside County, California.

November 21, 2014

From: Nina Gallardo <ngallardo@crmtech.us>
Sent: Wednesday, December 3, 2014 1:26 PM
To: 'Tina Thompson Mendoza'
Cc: ahoover@pechanga-nsn.gov
Subject: Survey for The Village at Junipero; APNs 333-070-018, -019 and -053 (CRM TECH Contract No. 2875)

Hello Ms. Mendoza,

I'm emailing to inform you that we will be conducting an archaeological survey this Friday (12/5/14) at 7 am for The Village at Junipero project (APNs 333-070-018, -019, and -053; CRM#2875) and we want to see if the Pechanga Tribe would like to participate in the survey with us. I'm attaching a map for this project. Please contact me or Daniel Ballester (909-376-7842) for more information about the location to meet up for the survey. Thank you for your time.

Nina Gallardo
Project Archaeologist/Native American liaison
CRM TECH
1016 E. Cooley Drive, Ste. A/B
Colton, CA 92324
(909) 824-6400

From: Nina Gallardo <ngallardo@crmtech.us>
Sent: Wednesday, December 3, 2014 1:30 PM
To: 'Joseph Ontiveros'
Subject: Archaeological survey for The Village at Junipero; APNs 333-070-018, -019 and -053 (CRM TECH Contract No. 2875)

Hello Mr. Ontiveros,

I'm emailing to inform you that we will be conducting an archaeological survey this Friday (12/5/14) at 7 am for The Village at Junipero project (APNs 333-070-018, -019, and -053; CRM#2875) and we want to see if the Soboba Band would like to participate in the survey with us. I'm attaching a map for this project. Please contact me or Daniel Ballester (909-376-7842) for more information about the location to meet up for the survey. Thank you for your time.

Nina Gallardo
Project Archaeologist/Native American liaison
CRM TECH
1016 E. Cooley Drive, Ste. A/B
Colton, CA 92324
(909) 824-6400

STATE OF CALIFORNIA Edmund G. Brown, Jr., Governor

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd., ROOM 100
West SACRAMENTO, CA 95691
(916) 373-3710
Fax (916) 373-5471

December 11, 2014

Nina Gallardo
CRM Tech
1016 E. Cooley Drive, Suite A/B
Colton, CA 92324

Sent by Fax: (909) 824-6405
Number of Pages: 4

Re: The Village at Junipero: APNs 333-070-018, -019 and 333-070-053 (CRM TECH Contract No, 2875), Riverside County.

Dear Ms. Gallardo,

A record search of the sacred land file has failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Enclosed is a list of Native Americans individuals/organizations who may have knowledge of cultural resources in the project area. The Commission makes no recommendation or preference of a single individual, or group over another. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe or group. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 373-3712.

Sincerely,

Katy Sanchez

Katy Sanchez
Associate Government Program Analyst

Native American Contacts
Riverside County
December 10, 2014

Pala Band of Mission Indians
Historic Preservation Office/Shasta Gaughen
12196 Pala Mission Road Luiseno
Pala , CA 92059 Cupeno
sgaughen@palatribe.com
(760) 891-3515
(760) 742-3189 Fax

Soboba Band of Mission Indians
Rosemary Morillo, Chairperson; Attn: Carrie Garcia
P.O. Box 487 Luiseno
San Jacinto , CA 92581
carrieg@soboba-nsn.gov
(951) 654-2765
(951) 654-4198 Fax

Pauma & Yuima Reservation
Randall Majel, Chairperson
P.O. Box 369 Luiseno
Pauma Valley CA 92061
(760) 742-1289
(760) 742-3422 Fax

Pauma Valley Band of Luiseño Indians
Bennae Calac
P.O. Box 369 Luiseno
Pauma Valley CA 92061
bennaecalac@aol.com
(760) 617-2872
(760) 742-3422 Fax

Pechanga Band of Mission Indians
Paul Macarro, Cultural Resources Manager
P.O. Box 1477 Luiseno
Temecula , CA 92593
pmacarro@pechanga-nsn.gov
(951) 770-8100
(951) 506-9491 Fax

Pauma & Yuima
ATTN: EPA
P.O. Box 369 Luiseno
Pauma Valley CA 92061
kymberli_peters@yahoo.com
(760) 742-1289
(760) 742-3422 Fax

Rincon Band of Mission Indians
Vincent Whipple, Tribal Historic Pres. Officer
1 West Tribal Road Luiseno
Valley Center, CA 92082
vwhipple@rincontribe.org
(760) 297-2635
(760) 297-2639 Fax

Rincon Band of Mission Indians
Bo Mazzetti, Chairperson
1 West Tribal Road Luiseno
Valley Center, CA 92082
bomazzetti@aol.com
(760) 749-1051
(760) 749-8901 Fax

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting locative Americans with regard to cultural resources for the proposed The Village at Junipero; APNs 333-070-018, 019 and 333-070-053 (CRM TECH Contract No. 2875), Riverside County.

Native American Contacts
Riverside County
December 10, 2014

San Luis Rey Band of Mission Indians
Tribal Council
1889 Sunset Drive Luiseno
Vista , CA 92081
cjmojado@slrmissionindians.org
(760) 724-8505
(760) 724-2172 Fax

William J. Pink
48310 Pechanga Road Luiseno
Temecula , CA 92592
wjpink@hotmail.com
(909) 936-1216
Prefers e-mail contact

San Luis Rey Band of Mission Indians
Cultural Department
1889 Sunset Drive Luiseno
Vista , CA 92081 Cupeno
cjmojado@slrmissionindians.org
(760) 724-8505
(760) 724-2172 Fax

La Jolla Band of Mission Indians
Lavonne Peck, Chairwoman
22000 Highway 76 Luiseno
Pauma Valley CA 92061
rob.roy@lajolla-nsn.gov
(760) 742-3771
(760) 742-1704 Fax

Kupa Cultural Center (Pala Band)
Shasta Gaughen, Assistant Director
35008 Pala-Temecula Rd., PMB 50 Luiseno
Pala , CA 92059
cupa@palatribe.com
(760) 891-3590
(760) 742-4543 Fax

Pauma & Yuima Reservation
Charles Devers, Cultural Committee
P.O. Box 369 Luiseno
Pauma Valley CA 92061
(760) 742-1289
(760) 742-3422 Fax

Pechanga Band of Mission Indians
Mark Macarro, Chairperson
P.O. Box 1477 Luiseno
Temecula , CA 92593
mgoodhart@pechanga-nsn.
(951) 770-6100
(951) 695-1778 Fax

Pechanga Cultural Resources Department
Anna Hoover, Cultural Analyst
P.O. Box 2183 Luiseño
Temecula , CA 92593
ahoover@pechanga-nsn.gov
(951) 770-8104
(951) 694-0446 Fax

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting locative Americans with regard to cultural resources for the proposed The Village at Junipero; APNs 333-070-018, 019 and 333-070-053 (CRM TECH Contract No. 2875), Riverside County.

Native American Contacts
Riverside County
December 10, 2014

Soboba Band of Luiseno Indians
Joseph Ontiveros, Cultural Resource Department
P.O. BOX 487 Luiseno
San Jacinto , CA 92581
jontiveros@soboba-nsn.gov
(951) 663-5279
(951) 654-5544, ext 4137
(951) 654-4198 Fax

Pala Band of Mission Indians
Robert H. Smith, Chairperson
35008 Pala-Temecula Rd., PMB 50 Luiseno
Pala , CA 92059 Cupeno
(760) 891-3500
(760) 742-3189 Fax

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting locative Americans with regard to cultural resources for the proposed The Village at Junipero; APNs 333-070-018, 019 and 333-070-053 (CRM TECH Contract No. 2875), Riverside County.

December 16, 2014

Charlie Devers, Cultural Committee
Pauma and Yuima Reservation
P. O. Box 369
Pauma Valley, CA 92061

RE: The Village at Junipero; APNs 333-070-018, -019, and -053
Approximately 19 Acres in the City of Menifee
Riverside County, California
CRM TECH Contract #2875

Dear Mr. Devers:

North Bayport Industrial Park II, Inc., is proposing a residential development in the City of Menifee, Riverside County, California, known as The Village at Junipero Project (APNs 333-070-018, -019, and -053). The project area encompasses approximately 19 acres of undeveloped land located north of the intersection of McCall Boulevard and Menifee Road. The accompanying map, based on the USGS Romoland, Calif., 7.5' quadrangle, depicts the location of the project area in Section 23, T5S R3W, SBBM. CRM TECH has been hired to conduct a cultural resource study, including the Native American scoping, for this project.

In a letter dated December 11, 2014, the Native American Heritage Commission reports that the sacred lands record search identified no Native American cultural resources within the project area, but recommends that local Native American groups be contacted for further information. Therefore, as part of the cultural resources study for this project, I am writing to request your input on potential Native American cultural resources in or near the project area.

According to records on file at the Eastern Information Center, there are no known historical/archaeological sites within the boundaries of the project area. Outside the project area but within a one-mile radius, 9 prehistoric sites and 12 historic-period sites were previously identified. The closest among these, Site 33-012535, consists of a bedrock milling feature and a lithic scatter, located about 0.10 mile west of the project area. The majority of the sites are concentrated in the foothills to the west of the project area and consist mainly of bedrock milling features and lithic scatters. The majority of the historic-period sites are farms, foundations, and refuse dumps. A systematic field survey of the project area on December 5, 2014, encountered one isolate near the western boundary of the project area, consisting of a single obsidian flake.

Please respond at your earliest convenience if you have any specific knowledge of sacred/religious sites or other sites of Native American traditional cultural value within or near the project area that need to be taken into consideration as part of the cultural resources investigation. Any information or concerns may be forwarded to CRM TECH by telephone, e-mail, facsimile, or standard mail. Requests for documentation or information we cannot provide will be forwarded to our client and/or the lead agency, which is the City of Menifee for CEQA-compliance purposes. We would also like to clarify that CRM TECH, as the cultural resources consultant for the project, is not the appropriate entity to initiate government-to-government consultations. Thank you for the time and effort in addressing this important matter.

Respectfully,

Nina Gallardo, CRM TECH
Email: ngallardo@crmtech.us

Encl.: project area map

From: Cultural <Cultural@pauma-nsn.gov>
Sent: Tuesday, December 23, 2014 3:11 PM
To: ngallardo@crmtech.us
Cc: Dixon, Patti; Jeremy Zagarella
Subject: The Village at Junipero

Ms. Gallardo,

The Pauma Band of Luiseno Indians has received your December 16 letter on the Village at Junipero. We would urge the developer to have cultural monitors on site during the grading phase of the project. While we are not aware of any specific sites on the project property and with sites close by, the potential of un-earthing cultural resources increases. Please continue to provide us with information of your studies on or near the project property.

Thank you,

Chris Devers
Cultural Clerk
Pauma Band of Luiseno Indians

PALA TRIBAL HISTORIC PRESERVATION OFFICE

PMB 50, 35008 Pala Temecula Road
Pala, CA 92059
760-891-3510 Office | 760-742-3189 Fax

PALA THPO

December 31, 2014

Nina Gallardo
CRM Tech
2026 E. Cooley Drive, Suite A/B
Colton, CA 92324

Re: The Village at Junipero; CRM Tech Contract # 2875

Dear Mrs. Gallardo,

The Pala Band of Mission Indians Tribal Historic Preservation Office has received your notification of the project referenced above. This letter constitutes our response on behalf of Robert Smith, Tribal Chairman.

We have consulted our maps and determined that the project as described is not within the boundaries of the recognized Pala Indian Reservation. The project is also beyond the boundaries of the territory that the tribe considers its Traditional Use Area (TUA). Therefore, we have no objection to the continuation of project activities as currently planned and we defer to the wishes of Tribes in closer proximity to the project area.

We appreciate involvement with your initiative and look forward to working with you on future efforts. If you have questions or need additional information, please do not hesitate to contact me by telephone at 760-891-3515 or by e-mail at sgaughen@palatribe.com.

Sincerely,

Shasta C. Gaughen, PhD
Tribal Historic Preservation Officer
Pala Band of Mission Indians

ATTENTION: THE PALA TRIBAL HISTORIC PRESERVATION OFFICE IS RESPONSIBLE FOR ALL REQUESTS FOR CONSULTATION. PLEASE ADDRESS CORRESPONDENCE TO **SHASTA C. GAUGHEN** AT THE ABOVE ADDRESS. IT IS NOT NECESSARY TO ALSO SEND NOTICES TO PALA TRIBAL CHAIRMAN ROBERT SMITH.

APPENDIX 3:

BIBLIOGRAPHY OF PREVIOUS STUDIES IN THE PROJECT VICINITY

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
RI-00526	NADB-R - 1080565; Voided - MF-0457	1979	James Baldwin	Environmental Impact Evaluation: An Archaeological Assessment of Tentative Tract 13118, Sun City Area of Riverside County, California	Field Survey Consultants, Ridgecrest, CA	
RI-00876	NADB-R - 1080931; Voided - MF-0794	1980	Richard C. Jenkins	Environmental Impact Evaluation: An Archaeological Assessment of Tentative Parcel 16235, Reinhardt Canyon, Riverside County, California	Archaeological Research Unit, U.C. Riverside	33-001739
RI-01518	NADB-R - 1081792; Voided - MF-1603	1982	SWENSON, JAMES D	AN ARCHAEOLOGICAL ASSESSMENT OF GALATIANS 2:20 CONFERENCE CENTER (PLOT PLAN NO. 6801), RIVERSIDE COUNTY, CALIFORNIA	ARCHAEOLOGICAL RESEARCH UNIT, U.C. RIVERSIDE	33-001485
RI-01568	NADB-R - 1081860; Voided - MF-1668	1978	BOWLES, LARRY L. and JEAN SALPAS	AN ARCHAEOLOGICAL ASSESSMENT OF PARCEL 13408	AUTHOR(S)	
RI-01660	NADB-R - 1081951; Submitter - UCRARU #722; Voided - MF-1755	1983	MCCARTHY, DANIEL F.	ARCHAEOLOGICAL ASSESSMENT OF THE PROPOSED HOMELAND-GREEN ARCES POLLUTION PROJECT NO. C-06-2886, EASTERN MUNICIPAL WATER DISTRICT, RIVERSIDE COUNTY, CALIFORNIA	ARCHAEOLOGICAL RESEARCH UNIT, U.C. RIVERSIDE	33-002608, 33-002609, 33-002610, 33-002611, 33-002612
RI-01837	NADB-R - 1082217; Submitter - 0767; Voided - MF-2004	1984	BOUSCAREN, STEPHEN and DANIEL MCCARTHY	AN ARCHAEOLOGICAL ASSESSMENT OF THE PROPOSED DEVERS-VALLEY 500 KV TRANSMISSION LINE AND CORRIDOR AND THE PROPOSED VALLEY-AULD-SKYLARK 115 KV T/L CORRIDOR, RIVERSIDE COUNTY, CALIFORNIA	ARCHAEOLOGICAL RESEARCH UNIT, U.C. RIVERSIDE	33-000057, 33-000713, 33-000806, 33-001395, 33-002830, 33-002848, 33-002849, 33-002850, 33-002851, 33-002852, 33-002853, 33-002854, 33-002855
RI-02306	NADB-R - 1082763; Voided - MF-2507	1988	BREECE, W.H. and B. PADON	AN ARCHAEOLOGICAL SURVEY OF THREE PROPOSED LOCATIONS FOR THE SOUTHWEST COUNTY JUSTICE CENTER, RIVERSIDE COUNTY	CULTURAL RESOURCE MANAGEMENT DIVISION	
RI-02328	NADB-R - 1082785; Voided - MF-2529	1988	BREWER, CHRISTINA	AN ARCHAEOLOGICAL ASSESSMENT OF APN NO. 333.080.020, CASE NO. PUP 633, COUNTY OF RIVERSIDE, CALIFORNIA	AUTHOR(S)	
RI-02341	NADB-R - 1082805; Voided - MF-2547	1988	DROVER, C.E.	A CULTURAL RESOURCE INVENTORY, MENIFEE RANCH SPECIFIC PLAN PROJECT NEAR ROMOLAND, CALIFORNIA	AUTHOR(S)	33-003429
RI-02342	NADB-R - 1084635; Voided - MF-2547	1989	DROVER, CHRISTOPHER	A CULTURAL RESOURCE REVIEW: AN ADDENDUM TO THE MENIFEE RANCH SPECIFIC PLAN, NEAR HEMET, CALIFORNIA	AUTHOR	

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
RI-02547	NADB-R - 1083034; Voided - MF-2771	1989	DROVER, CHRISTOPHER E. and COLE PARKER	RANCHO VILLAGES ASSESSMENT DISTRICT SEWER LIFT STATION: THE VAIL SITE, RIV-365. AN ARCHAEOLOGICAL TEST AND MITIGATION.	AUTHOR(S)	33-000365
RI-02707	NADB-R - 1083201; Voided - MF-2911	1989	WHITE, ROBERT	AN ARCHAEOLOGICAL ASSESSMENT OF THREE ADJACENT PARCELS: #25029, 25030 AND 25031 EAST OF THE WALKER BASIN, RIVERSIDE COUNTY.	ARCHAEOLOGICAL ASSOCIATES, LTD.	
RI-04461	NADB-R - 1081786; Voided - MF-1595	1982	SCIENTIFIC RESOURCE SURVEYS, INC.	Archaeological Assessment Form (ARCHAEOLOGICAL SURVEY OF PROPERTY EAST OF SUN CITY)	Scientific Resource Surveys, Inc., Huntington Beach, CA	
RI-04518	NADB-R - 1085879	2000	SMITH, BRIAN F. and JOHANNA L. BUYSSE	AN ARCHAEOLOGICAL/HISTORICAL STUDY FOR THE MENIFEE RANCH PROJECT, PERRIS VALLEY, COUNTY OF RIVERSIDE--SPECIFIC PLAN NUMBER 301, AMENDMENT #1	BRIAN F. SMITH AND ASSOCIATES, San Diego, CA	33-003429, 33-009722, 33-009723, 33-009724, 33-009725, 33-009726
RI-05627	NADB-R - 1086990	2003	DROVER, CHRISTOPHER E.	A CULTURAL RESOURCERS INVENTORY: AN ARCHAEOLOGICAL ASSESSMENT OF ROMOLAND 64 PROJECT, ROMOLAND, RIVERSIDE COUNTY, CA	CHRISTOPHER DROVER	33-012535, 33-012536
RI-06018	NADB-R - 1087381; Submitter - 1104	2003	TANG, BAI, MICHAEL HOGAN, MARIAM DAHDUL, and DANIEL BALLESTER	HISTORICAL/ARCHAEOLOGICAL RESOURCES SURVEY REPORT, MENIFEE VALLEY NORTH DRAINAGE FACILITIES PROJECT, IN AND NEAR THE COMMUNITIES OF ROMOLAND AND HOMELAND, RIVERSIDE COUNTY, CA	CRM TECH	
RI-06159	NADB-R - 1087522	2004	AISLIN-KAY, MARNIE	LETTER REPORT: CULTURAL RESOURCE RECORDS SEARCH AND SITE VISIT RESULTS FOR CINGULAR TELECOMMUNICATIONS FACILITY CANDIDATE SC-319-02 (SUNRISE CHRISTIAN CHURCH), 27985 MENIFEE ROAD, ROMOLAND, RIVERSIDE COUNTY, CA	MICHAEL BRANDMAN ASSOCIATES	
RI-06636	NADB-R - 1088003; Submitter - CRM TECH CONTRACT #1814A	2006	TANG, BAI, MICHAEL HOGAN, MARIAM DAHDUL, and JOHN J. EDDY	HISTORICAL/ARCHAEOLOGICAL RESOURCES SURVEY REPORT: SPANOS-ANTELOPE RIDGE PROJECT, NEAR THE COMMUNITY OF SUN CITY, RIVERSIDE COUNTY, CALIFORNIA	CRM TECH	

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
RI-06888	Submitter - 06-63	2006	Lerch, Michael K. and Gray, Marlesa A.	Cultural Resources Assessment of the Valley-Ivyglen Transmission Line Project, Riverside County, California	Statistical Research, Inc.	33-015346, 33-015347, 33-015348, 33-015349, 33-015350, 33-015351, 33-015352, 33-015353, 33-015354, 33-015355, 33-015356, 33-015357, 33-015358, 33-015359, 33-015360, 33-015361, 33-015362, 33-015363, 33-015364, 33-015365, 33-015375, 33-015376, 33-015377, 33
RI-06989		2006	Glenn, Brian K.	Cultural Resources Assessment: Sun City Medical Center, McCall Coulevard, Sun City, Riverside County, California	BonTerra Consulting	
RI-07509	Submitter - CRM Tech No.1856	2007	Hogan, Michael and Bai "Tom" Tang	Archaeological Mitigation Report Site 33-011466 (CA-RIV-6844/H) Tract No. 29777, near the Community of Romoland, Riverside County, California	CRM Tech	33-011466
RI-07528	Other - Contract No. 00009.08	2008	Cooley, Theodore G.	Archaeological Survey Report for Southern California Edison Company Livermore 12 kV DSP Project, Riverside County, California (WO#6577-5345, AI#6-5350)	Jones and Stokes	33-009724, 33-015743
RI-07622	Submitter - CONTRACT NO. 2204A	2008	Hogan, M. and Tang, T.	PHASE I ARCHAEOLOGICAL ASSESSMENT: GREEN HERITAGE, LLC MENIFEE VALLEY AREA, RIVERSIDE COUNTY, CALIFORNIA	CRM TECH	
RI-07628		2002	Smith, Brian F. and Johnna L. Buysse	An Archaeological/Historical Study for Tract No. 29835 Menifee West GPA Project, Perris Valley, County of Riverside	Brian F. Smith and Associates	33-011464, 33-011465, 33-011466, 33-011467, 33-011468, 33-011469, 33-011470, 33-011471, 33-011472, 33-014464, 33-014465, 33-014466, 33-014467, 33-014468, 33-014469, 33-014470, 33-014471, 33-014472
RI-07634		2005	Smith, Brian F.	A Cultural Resources Study for the Bradberry Project	Brian F. Smith and Associates	33-014092, 33-014093
RI-07696		2007	Pierson, Larry J.	Results of Archaeological Monitoring at the Heritage Lake Project, Tentative Tract No. 32664, Unincorporated Riverside County, California (Negative Archaeological Monitoring Report)	Brian F. Smith and Associates	

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
RI-07876		2006	Pierson, Larry J.	Results of the Mitigation Monitoring and Reporting Program for the Heritage Lake Phase II Project, Perris Valley, County of Riverside. Specific Plan Number 301, Amendment #1.	Brian F. Smith and Associates	33-009725
RI-07927	Submitter - CRM TECH Contract No. 2276	2008	Bodmer, Clarence, Daniel Ballester, and Laura H. Shaker	Phase I Archaeological Assessment: Tentative Parcel Map No. 34998, Heritage Square Project, Menifee Valley Area, Riverside County, California	CRM TECH	
RI-07966		2008	Sara Clowery-Moreno and Brian F. Smith	A Phase I Archaeological Assessment for the Retaining Walls Project, Riverside County, California APNs 331-210-019, -020, and -021; CUP 03560	Brian F. Smith and Associates	
RI-08374	Other - Contract No. 4600000438; Project 00309.09	2009	William T. Eckhardt and Stacie Wilson	Final Cultural Resources Inventory of the Proposed SCE Devers to Valley Substation Project, Riverside County, California.	ICF Jones & Stokes	33-001395, 33-002830, 33-004715, 33-005066, 33-005069, 33-005072, 33-005073, 33-006727, 33-011265, 33-011280, 33-012278, 33-012310, 33-013499, 33-014967, 33-015102, 33-015103, 33-015104, 33-015105, 33-017577, 33-017578, 33-017579, 33-017580, 33-017582, 33
RI-08955	Submitter - Project No. 60247921.300	2013	Stacie Wilson and Jill Gibson	Confidiential, Final, Cultural Resources Survey Report For Thw Proposed Southern California Edison Valley South Subtransmission Project (VSSP), Riverside County, California	AECOM	33-001074, 33-001175, 33-004008, 33-004012, 33-011250, 33-011254, 33-011449, 33-012439, 33-012443, 33-012444, 33-013299, 33-013871, 33-014370, 33-014389, 33-015313, 33-015314, 33-015743, 33-016709, 33-016975, 33-021021, 33-021022, 33-021023, 33-021024, 33
RI-08980	Other - PN 15700.02	2010	Scott C. Justus, Matthew M. DeCarlo, and William T. Eckhardt	Final: Cultural Resources Inventory Of The Proposed DPV2 Construction Yards Riverside County California	ASM Affiliates	33-008313, 33-015033, 33-015035, 33-015743, 33-018078, 33-018079, 33-018080, 33-018113, 33-018114, 33-018115, 33-018116, 33-018277

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
RI-09002		2014	Bai "Tom" Tang	Re: Update to Historical/ Archaeological Resources Survey Report Menifee Valley North Drainage Facilities Project, Cities of Menifee and Perris; Unincorporated Homeland and Romoland Areas, Riverside County, California, CRM TECH Contract No. 1104/2771	CRM Tech	33-015743, 33-020504, 33-020644

APPENDIX 4

ISOLATE RECORD FORMS
33-024087

(Confidential)

State of California--The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary # 33-024087
HRI #
Trinomial
NRHP Status Code 6Z
Other Listings
Review Code Reviewer Date

Page 1 of 2 *Resource Name or # (Assigned by recorder) CRM TECH 2875 Iso-1

P1. Other Identifier:

***P2. Location:** √ **Not for Publication** **Unrestricted** ***a. County** Riverside

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad** Romoland, Calif. **Date** 1953, photorevised 1979
T5S; **R**3W; SE **1/4 of** NE **1/4 of Sec** 23; S.B. **B.M.**
Elevation: Approximately 1,460 feet above mean sea level

c. Address N/A **City** **Zip**

d. UTM: (Give more than one for large and/or linear resources) **Zone** 11 ;485,376 **mE**/ 3,721,579 **mN**
UTM Derivation: USGS Quad √ GPS (NAD83)

e. Other Locational Data: (e.g., parcel #, directions to resource, etc., as appropriate) Approx. 1,140 feet west of Menifee Road and 970 feet north of McCall Boulevard

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries) This isolate consists of a dark brown obsidian flake measuring 0.9x0.8x0.3 cm in size. It was found in a fallow agricultural field that was recently disked. Pressure flaking scars were observed on the flake.

***P3b. Resource Attributes:** (List attributes and codes) AP16: Other

***P4. Resources Present:** Building Structure Object Site District Element of District
√ Isolate Other

P5a. Photograph or Drawing (Photograph required for buildings, structures, and objects.)

P5b. Description of Photo: (view, date, accession #)

***P6. Date Constructed/Age and Sources:** Historic √ Prehistoric Both

***P7. Owner and Address:**

***P8. Recorded by:** (Name, affiliation, and address) Daniel Ballester CRM TECH, 1016 East Cooley Drive, Suite A/B, Colton, CA 92324

***P9. Date Recorded:** December 05, 2014

***P10. Survey Type:** (Describe) Intensive-level survey for CEQA-compliance purpose

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") Bai "Tom" Tang, Michael Hogan, and Deirdre Encarnación (2015): Phase 1 Cultural Resources Assessment: The Village at Menifee, City of Menifee, Riverside County, California

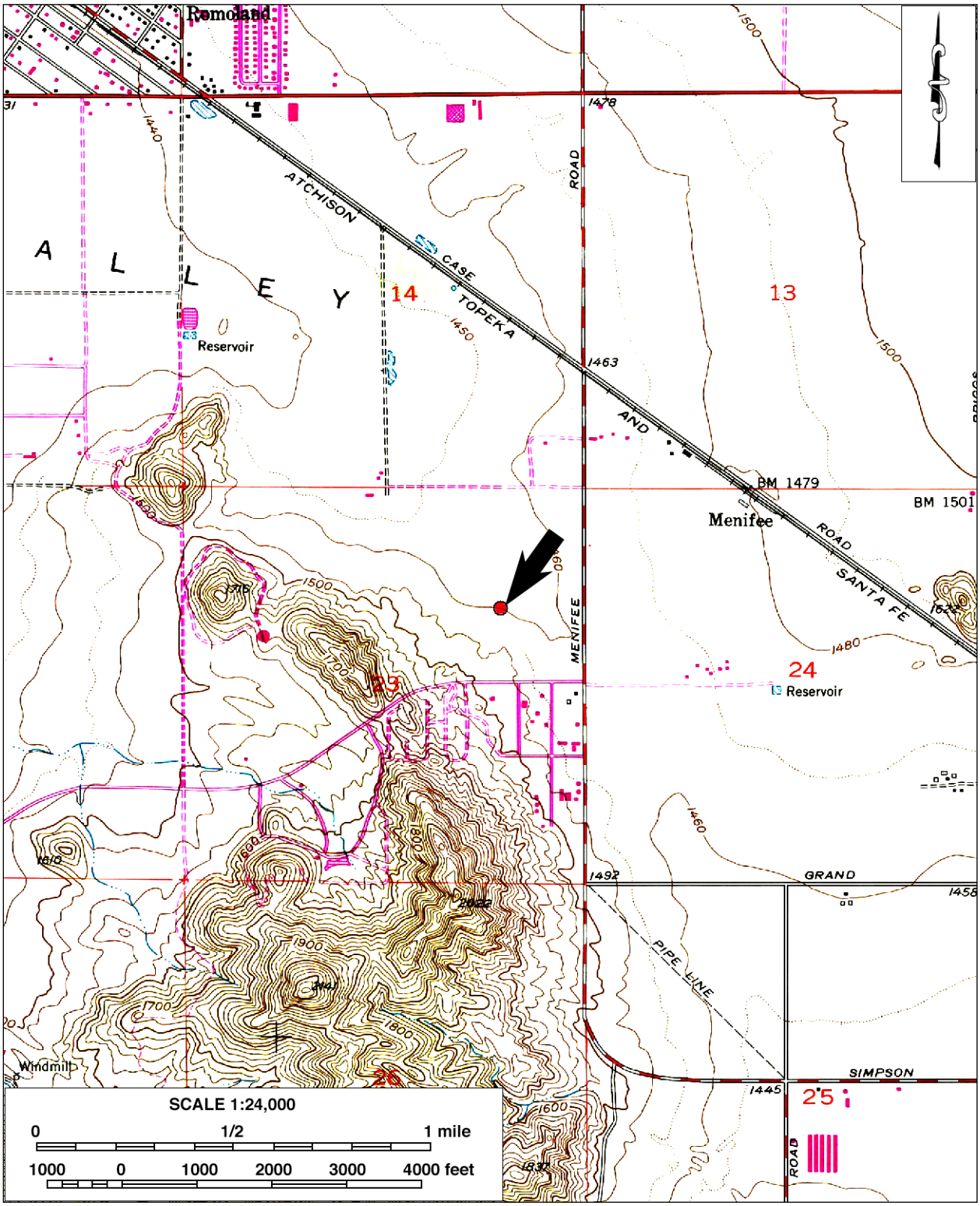
***Attachments:** None √ Location Map Sketch Map Continuation Sheet Building, Structure, and Object Record
Archaeological Record District Record Linear Resource Record Milling Station Record Rock Art Record
Artifact Record Photograph Record Other (List):

State of California--The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

Primary # 33-024087
HRI #
Trinomial

Page 2 of 2 *Resource Name or # (Assigned by recorder) CRM TECH 2875 Iso-1

*Map Name: Romoland, Calif. *Scale: 1:24,000 *Date of Map: 1953, photorevised 1979



DPR 523J (1/95)

*Required information

MEMORANDUM

URBAN | CROSSROADS

DATE: October 31, 2022
TO: Kent Norton, MIG
FROM: Haseeb Qureshi
Ali Dadabhoy
JOB NO: 14854-02 AQ, GHG & EA Assessment

VILLAGE AT JUNIPERO (PLN22-0030) AIR QUALITY, GREENHOUSE GAS & ENERGY ASSESSMENT

Kent Norton,

Urban Crossroads, Inc. is pleased to provide the following Air Quality, Greenhouse Gas & Energy Assessment for the Village at Junipero (PLN22-0030) (**Project**), which is located north of McCall Boulevard, east of Junipero Road, south of Heritage Lakes Drive, and west of Menifee Road in the City of Menifee. The closest major airport is the Perris Valley Airport located roughly 4 miles northwest of the Project site.

PROJECT OVERVIEW

The Project is proposed to consist of the development of 240 market-rate apartments (multifamily (low-rise, 2-3 floors) residential) (see Exhibit 1). The proposed apartment complex consists of 24 buildings containing 10 units per building with individual unit sizes ranging from one to three bedrooms and each unit would contain one to two car garages. The proposed Project is anticipated to have an opening year of 2025.

SUMMARY OF FINDINGS

Results of the assessment indicate that the Project would result in a less than significant impact with respect to air quality, greenhouse gases and energy and no mitigation is required.

EXHIBIT 1: PROJECT'S TENTATIVE TRACT MAP



PROJECT AIR QUALITY IMPACTS

AIR QUALITY SETTING

SOUTH COAST AIR BASIN (SCAB)

The Project site is located in the SCAB within the jurisdiction of South Coast Air Quality Management District (SCAQMD) (3). The SCAQMD was created by the 1977 Lewis-Presley Air Quality Management Act, which merged four county air pollution control bodies into one regional district. Under the Act, the SCAQMD is responsible for bringing air quality in areas under its jurisdiction into conformity with federal and state air quality standards. As previously stated, the Project site is located within the SCAB, a 6,745-square mile subregion of the SCAQMD, which includes portions of Los Angeles, Riverside, and San Bernardino Counties, and all of Orange County.

The SCAB is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The Los Angeles County portion of the Mojave Desert Air Basin is bounded by the San Gabriel Mountains to the south and west, the Los Angeles / Kern County border to the north, and the Los Angeles / San Bernardino County border to the east. The Riverside County portion of the Salton Sea Air Basin is bounded by the San Jacinto Mountains in the west and spans eastward up to the Palo Verde Valley.

Regional Climate

The regional climate has a substantial influence on air quality in the SCAB. In addition, the temperature, wind, humidity, precipitation, and amount of sunshine influence the air quality.

The annual average temperatures throughout the SCAB vary from the low to middle 60s degrees Fahrenheit (°F). Due to a decreased marine influence, the eastern portion of the SCAB shows greater variability in average annual minimum and maximum temperatures. January is the coldest month throughout the SCAB, with average minimum temperatures of 47°F in downtown Los Angeles and 36°F in San Bernardino. All portions of the SCAB have recorded maximum temperatures above 100°F.

Although the climate of the SCAB can be characterized as semi-arid, the air near the land surface is quite moist on most days because of the presence of a marine layer. This shallow layer of sea air is an important modifier of SCAB climate. Humidity restricts visibility in the SCAB, and the conversion of sulfur dioxide (SO_2) to sulfates (SO_4) is heightened in air with high relative humidity. The marine layer provides an environment for that conversion process, especially during the spring and summer months. The annual average relative humidity within the SCAB is 71 percent (%) along the coast and 59% inland. Since the ocean effect is dominant, periods of heavy early morning fog are frequent and low stratus clouds are a characteristic feature. These effects decrease with distance from the coast.

More than 90% of the SCAB's rainfall occurs from November through April. The annual average rainfall varies from approximately nine inches in Riverside to fourteen inches in downtown Los Angeles. Monthly and yearly rainfall totals are extremely variable. Summer rainfall usually consists of widely scattered thunderstorms near the coast and slightly heavier shower activity in the eastern portion of the SCAB with frequency being higher near the coast.

Due to its generally clear weather, about three-quarters of available sunshine is received in the SCAB. The remaining one-quarter is absorbed by clouds. The ultraviolet portion of this abundant radiation is a key factor in photochemical reactions. On the shortest day of the year there are approximately 10 hours of possible sunshine, and on the longest day of the year there are approximately 14½ hours of possible sunshine.

The importance of wind to air pollution is considerable. The direction and speed of the wind determines the horizontal dispersion and transport of the air pollutants. During the late autumn to early spring rainy season, the SCAB is subjected to wind flows associated with the traveling storms moving through the region from the northwest. This period also brings five to ten periods of strong, dry offshore winds, locally termed "Santa Anas" each year. During the dry season, which coincides with the months of maximum photochemical smog concentrations, the wind flow is bimodal, typified by a daytime onshore sea breeze and a nighttime offshore drainage wind. Summer wind flows are created by the pressure differences between the relatively cold ocean and the unevenly heated and cooled land surfaces that modify the general northwesterly wind circulation over southern California. Nighttime drainage begins with the radiational cooling of the mountain slopes. Heavy, cool air descends the slopes and flows through the mountain passes and canyons as it follows the lowering terrain toward the ocean. Another characteristic wind regime in the SCAB is the "Catalina Eddy," a low level cyclonic (counterclockwise) flow centered over Santa Catalina Island which results in an offshore flow to the southwest. On most spring and summer days, some indication of an eddy is apparent in coastal sections.

In the SCAB, there are two distinct temperature inversion structures that control vertical mixing of air pollution. During the summer, warm high-pressure descending (subsiding) air is undercut by a shallow layer of cool marine air. The boundary between these two layers of air is a persistent marine subsidence/inversion. This boundary prevents vertical mixing which effectively acts as an impervious lid to pollutants over the entire SCAB. The mixing height for the inversion structure is normally situated 1,000 to 1,500 feet above mean sea level.

A second inversion-type forms in conjunction with the drainage of cool air off the surrounding mountains at night followed by the seaward drift of this pool of cool air. The top of this layer forms a sharp boundary with the warmer air aloft and creates nocturnal radiation inversions. These inversions occur primarily in the winter when nights are longer and onshore flow is weakest. They are typically only a few hundred feet above mean sea level. These inversions effectively trap pollutants, such as nitrogen oxides (NO_X) and carbon monoxide (CO) from vehicles, as the pool of cool air drifts seaward. Winter is therefore a period of high levels of primary pollutants along the coastline.

Wind Patterns and Project Location

The distinctive climate of the Project area and the SCAB is determined by its terrain and geographical location. The SCAB is located in a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean in the southwest quadrant with high mountains forming the remainder of the perimeter.

Wind patterns across the south coastal region are characterized by westerly and southwesterly onshore winds during the day and easterly or northeasterly breezes at night. Winds are characteristically light although the speed is somewhat greater during the dry summer months than during the rainy winter season.

Criteria Pollutants

Both the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) have established ambient air quality standards for common pollutants. These ambient air quality standards are levels of contaminants representing safe levels that avoid specific adverse health effects associated with each pollutant. The ambient air quality standards cover what are called "criteria" pollutants because the health and other effects of each pollutant are described in criteria documents. The six criteria pollutants are ozone (O_3) (precursor emissions include NO_X and reactive organic gases (ROG), CO, particulate matter (PM), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead. Areas that meet ambient air quality standards are classified as attainment areas, while areas that do not meet these standards are classified as nonattainment areas. The Riverside County portion of the SCAB is designated as a nonattainment area for the federal O_3 and $PM_{2.5}$ standards and is also a nonattainment area for the state standards for O_3, PM_{10}, and $PM_{2.5}$.

Sensitive Receptor Locations

Some people are especially sensitive to air pollution and are given special consideration when evaluating air quality impacts from projects. These groups of people include children, the elderly, and individuals with pre-existing respiratory or cardiovascular illness. Structures that house these persons or places where they gather are defined as "sensitive receptors". These structures typically include uses such as residences, hotels, and hospitals where an individual can remain for 24 hours. Consistent with the LST Methodology, the nearest land use where an individual could remain for 24 hours to the Project site has been used to determine construction and operational air quality impacts for emissions of PM_{10} and $PM_{2.5}$, since PM_{10} and $PM_{2.5}$ thresholds are based on a 24-hour averaging time.

Receptors in the Project study area are described below. All distances are measured from the Project site boundary to the outdoor living areas (e.g., backyards) or at the building façade, whichever is closer to the Project site. Receptors in the Project study area are shown on Exhibit 2 under the Localized Construction Emissions section later in the report.

- Receptor R1 represents the existing residence at 27151 Settlement Street, approximately 89 feet north of the Project site.
- Receptor R2 represents the residence at 27299 Stonehurst Road, approximately 185 feet east of the Project site.
- Receptor R3 represents the school (Boulder Ridge Elementary) at 27327 Junipero Road, approximately 102 feet west of the Project site.
- Receptor R4 represents the existing residence at 27250 Buckaroo Circle, approximately 61 feet west of the Project site.

REGULATORY BACKGROUND

FEDERAL REGULATIONS

The EPA is responsible for setting and enforcing the national ambient air quality standards (NAAQS) for O_3, CO, NO_X, SO_2, PM_{10}, and lead (Pb) (5). The EPA has jurisdiction over emissions sources that are under the authority of the federal government including aircraft, locomotives, and emissions sources outside state waters (Outer Continental Shelf). The EPA also establishes emission standards for vehicles sold in states other than California. Automobiles sold in California must meet the stricter emission requirements of CARB.

The Federal Clean Air Act (CAA) was first enacted in 1955 and has been amended numerous times in subsequent years (1963, 1965, 1967, 1970, 1977, and 1990). The CAA establishes the federal air quality standards, the NAAQS, and specifies future dates for achieving compliance (6). The CAA also mandates that each state submit and implement state implementation plans (SIPs) for local areas not meeting these standards. These plans must include pollution control measures that demonstrate how the standards will be met.

The 1990 amendments to the CAA that identify specific emission reduction goals for areas not meeting the NAAQS require a demonstration of reasonable further progress toward attainment and incorporate additional sanctions for failure to attain or to meet interim milestones. The sections of the CAA most directly applicable to the development of the Project site include Title I (Non-Attainment Provisions) and Title II (Mobile Source Provisions) (7) (8). Title I provisions were established with the goal of attaining the NAAQS for the following criteria pollutants O_3, NO_2, SO_2, PM_{10}, CO, $PM_{2.5}$, and Pb. The NAAQS were amended in July 1997 to include an additional standard for O_3 and to adopt a NAAQS for $PM_{2.5}$.

Mobile source emissions are regulated in accordance with Title II provisions. These provisions require the use of cleaner burning gasoline and other cleaner burning fuels such as methanol and natural gas. Automobile manufacturers are also required to reduce tailpipe emissions of hydrocarbons and NO_X. NO_X is a collective term that includes all forms of NO_X which are emitted as byproducts of the combustion process.

CALIFORNIA REGULATIONS

CARB

The CARB, which became part of the California EPA (CalEPA) in 1991, is responsible for ensuring implementation of the California Clean Air Act (AB 2595), responding to the federal CAA, and for regulating emissions from consumer products and motor vehicles. AB 2595 mandates achievement of the maximum degree of emissions reductions possible from vehicular and other mobile sources in order to attain the state ambient air quality standards by the earliest practical date. The CARB established the California ambient air quality standards (CAAQS) for all pollutants for which the federal government has NAAQS and, in addition, establishes standards for SO_4, visibility, hydrogen sulfide (H_2S), and vinyl chloride (C_2H_3Cl). However, at this time, H_2S and C_2H_3Cl are not measured at any monitoring stations in the SCAB because they are not considered to be a regional air quality problem. Generally, the CAAQS are more stringent than the NAAQS (1) (2).

Local air quality management districts, such as the SCAQMD, regulate air emissions from stationary sources such as commercial and industrial facilities. All air pollution control districts have been formally designated as attainment or non-attainment for each CAAQS.

Serious non-attainment areas are required to prepare Air Quality Management Plans (AQMP) that include specified emission reduction strategies in an effort to meet clean air goals. These plans are required to include:

- Application of Best Available Retrofit Control Technology to existing sources;
- Developing control programs for area sources (e.g., architectural coatings and solvents) and indirect sources (e.g. motor vehicle use generated by residential and commercial development);
- A District permitting system designed to allow no net increase in emissions from any new or modified permitted sources of emissions;
- Implementing reasonably available transportation control measures and assuring a substantial reduction in growth rate of vehicle trips and miles traveled;
- Significant use of low emissions vehicles by fleet operators;
- Sufficient control strategies to achieve a 5% or more annual reduction in emissions or 15% or more in a period of three years for ROGs, NO_X, CO and PM_{10}. However, air basins may use alternative emission reduction strategy that achieves a reduction of less than 5% per year under certain circumstances.

AQMP

Currently, the NAAQS and CAAQS are exceeded in most parts of the SCAB. In response, the SCAQMD has adopted a series of AQMP to meet the state and federal ambient air quality standards (10). AQMPs are updated regularly in order to more effectively reduce emissions, accommodate growth, and to minimize any negative fiscal impacts of air pollution control on the economy.

APPLICABLE REGULATORY REQUIRMENTS

SCAQMD Rules that are currently applicable during construction activity for this Project include but are not limited to Rule 403 (Fugitive Dust), Rule 445 (Wood Burning Devices), and Rule 1113 (Architectural Coatings) (3) (4) (5).

SCAQMD Rule 403

This rule is intended to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (human-made) fugitive dust sources by requiring actions to prevent and reduce fugitive dust emissions. Rule 403 applies to any activity or human-made condition capable of generating fugitive dust and requires best available control measures to be applied to earth moving and grading activities. This rule is intended to reduce PM_{10} emissions from any transportation, handling, construction, or storage activity that has the potential to generate fugitive dust. PM_{10} suppression techniques are summarized below.

- Portions of a construction site to remain inactive longer than a period of three months will be seeded and watered until grass cover is grown or otherwise stabilized.
- All onsite roads will be paved as soon as feasible or watered periodically or chemically stabilized.
- All material transported offsite will be either sufficiently watered or securely covered to prevent excessive amounts of dust.
- The area disturbed by clearing, grading, earthmoving, or excavation operations will be minimized at all times.
- Where vehicles leave a construction site and enter adjacent public streets, the streets will be swept daily or washed down at the end of the workday to remove soil tracked onto the paved surface.

SCAQMD Rule 445

This rule is intended to reduce the emission of particulate matter from wood-burning devices. The Project is required to comply with SCAQMD Rule 445, which prohibits the use of wood burning stoves and fireplaces in new development.

SCAQMD Rule 1113

This rule serves to limit the volatile organic compound (VOC) content of architectural coatings used on projects in the SCAQMD. Any person who supplies, sells, offers for sale, or manufactures any architectural coating for use on projects in the SCAQMD must comply with the current VOC standards set in this rule.

METHODOLOGY

In May 2022, the California Air Pollution Control Officers Association (CAPCOA) in conjunction with other California air districts, including SCAQMD, released the latest version of the CalEEMod Version 2022.1. The purpose of this model is to calculate construction-source and operational-source criteria pollutant (VOCs, NO_X, SO_X, CO, PM_{10}, and $PM_{2.5}$) and GHG emissions from direct and indirect sources; and quantify applicable air quality and GHG reductions achieved from mitigation measures (6). Accordingly, the latest version of CalEEMod has been used for this Project to determine construction and operational air quality and greenhouse gas emissions.

Standards of Significance

The criteria used to determine the significance of potential Project-related air quality impacts are taken from the California Environmental Quality Act Guidelines (CEQA Guidelines) (14 CCR §§15000, et seq.). Based on these thresholds, a project would result in a significant impact related to air quality if it would (7):

- **Threshold 1**: Conflict with or obstruct implementation of the applicable air quality plan.
- **Threshold 2**: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard.
- **Threshold 3**: Expose sensitive receptors to substantial pollutant concentrations.

- **Threshold 4**: Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

AIR QUALITY REGIONAL EMISSIONS THRESHOLDS

The SCAQMD has developed regional significance thresholds for criteria pollutants, as summarized at Table 1 (8). The SCAQMD's CEQA Air Quality Significance Thresholds (April 2019) indicate that any projects in the South Coast Air Basin (SCAB) with daily emissions that exceed any of the indicated thresholds should be considered as having an individually and cumulatively significant air quality impact.

TABLE 1: MAXIMUM DAILY REGIONAL EMISSIONS THRESHOLDS

Pollutant	Construction	Operations
NO_X	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM_{10}	150 lbs/day	150 lbs/day
$PM_{2.5}$	55 lbs/day	55 lbs/day
SO_X	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day

lbs/day – Pounds Per Day

AIR QUALITY LOCALIZED EMISSIONS THRESHOLDS

For this Project, the appropriate SRA for the LST analysis is the SCAQMD Perris Valley monitoring station (SRA 24). LSTs apply to CO, NO_2, PM_{10}, and $PM_{2.5}$. The SCAQMD produced look-up tables for projects less than or equal to 5 acres in size. The SCAQMD's screening look-up tables are utilized in determining localized impacts. It should be noted that since the look-up tables identify thresholds at only 1 acre, 2 acres, and 5 acres, linear regression has been utilized to determine localized significance thresholds. Consistent with SCAQMD guidance, the thresholds presented in Table 2 were calculated by interpolating the threshold values for the Project's disturbed acreage.

The acres disturbed is based on the equipment list and days in the site preparation and grading phase according to the anticipated maximum number of acres a given piece of equipment can pass over in an 8-hour workday. The equipment-specific grading rates are summarized in the CalEEMod user's guide, Appendix A: Calculation Details for CalEEMod (9). It should be noted that the disturbed area per day is representative of a piece of equipment making multiple passes over the same land area. In other words, one Rubber Tired Dozer can make multiple passes over the same land area totaling 0.5 acres in a given 8-hour day. Appendix A of the CalEEMod User Manual only identifies equipment-specific grading rates for Crawler Tractors, Graders, Rubber Tired Dozers, and Scrapers; therefore, Tractors/Loaders/Backhoes equipment that was included in the site preparation and grading phase was replaced with crawler tractors. For analytical purposes, emissions associated with peak site preparation and grading activities are considered for purposes of localized significance thresholds (LSTs) since this phase represents the maximum

localized emissions that would occur. The Project's construction activities could disturb a maximum of approximately 3.5 acres per day for site preparation and 4 acres per day for grading activities. Any other construction phases of development would result in lesser emissions and consequently lesser impacts than what is disclosed herein. As such, Table 2 presents thresholds for localized construction and operational emissions.

TABLE 2: MAXIMUM DAILY LOCALIZED EMISSIONS THRESHOLDS

Source	Activity	Emissions (lbs/day)			
		VOC	NOX	PM_{10}	$PM_{2.5}$
Construction	Site Preparation	220 lbs/day	1,230 lbs/day	10 lbs/day	6 lbs/day
	Grading	237 lbs/day	1,346 lbs/day	11 lbs/day	7 lbs/day

[1]Source of localized significance threshold (LSTs) is provided on page 8.

REGIONAL CONSTRUCTION EMISSIONS SUMMARY

The estimated maximum daily construction emissions without mitigation are summarized on Table 3. Detailed construction model outputs are presented in Attachment A. Under the assumed scenarios, emissions resulting from the Project construction will not exceed thresholds established by the SCAQMD for emissions of any criteria pollutant and no mitigation is required.

REGIONAL OPERATIONAL EMISSIONS

Operational activities associated with the Project would result in emissions of CO, VOCs, NO_X, SO_X, PM_{10}, and $PM_{2.5}$. Operational related emissions are expected from the following primary sources: area source emissions, energy source emissions, and mobile source emissions,

The Project related operational air quality impacts derive primarily from vehicle trips generated by the Project. Trip characteristics available from the *Village at Junipero (PLN22-0030) Traffic Scope* report were utilized in this analysis (10).

The estimated operation-source emissions from the Project are summarized on Table 4. Detailed operation model outputs are presented in Attachment A. As shown on Table 4, operational-source emissions would not exceed the applicable SCAQMD regional thresholds for emissions of any criteria pollutant and no mitigation is required.

TABLE 3 OVERALL REGIONAL CONSTRUCTION EMISSIONS SUMMARY

Source	Emissions (lbs/day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Summer						
2023	4.31	41.10	34.50	0.06	4.90	2.85
2024	2.20	13.80	28.90	0.03	2.99	1.09
Winter						
2023	4.99	47.10	39.20	0.06	8.43	5.07
2024	55.10	13.90	25.40	0.03	2.99	1.08
2025	55.10	1.40	3.55	< 0.005	0.50	0.14
Maximum Daily Emissions	**55.10**	**47.10**	**39.20**	**0.06**	**8.43**	**5.07**
SCAQMD Regional Threshold	75	100	550	150	150	55
Threshold Exceeded?	NO	NO	NO	NO	NO	NO

[1]PM_{10} and $PM_{2.5}$ source emissions reflect 3x daily watering per SCAQMD Rule 403 for fugitive dust.

TABLE 4: TOTAL PROJECT REGIONAL OPERATIONAL EMISSIONS

Source	Emissions (lbs/day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Summer						
Mobile Source	6.87	6.21	56.4	0.13	4.6	0.89
Area Source	7.34	3.72	15.1	0.02	0.29	0.3
Energy Source	0.06	1.03	0.44	0.01	0.08	0.08
Total Maximum Daily Emissions	**14.27**	**10.96**	**71.94**	**0.16**	**4.97**	**1.27**
SCAQMD Regional Threshold	55	55	550	150	150	55
Threshold Exceeded?	NO	NO	NO	NO	NO	NO
Winter						
Mobile Source	6.39	6.65	47.6	0.13	4.6	0.89
Area Source	6.12	3.58	1.52	0.02	0.29	0.29
Energy Source	0.06	1.03	0.44	0.01	0.08	0.08
Total Maximum Daily Emissions	12.57	11.26	49.56	0.16	4.97	1.26
SCAQMD Regional Threshold	55	55	550	150	150	55
Threshold Exceeded?	NO	NO	NO	NO	NO	NO

SENSITIVE RECEPTORS

The analysis uses the methodology included in the SCAQMD *Final Localized Significance Threshold Methodology* (LST Methodology) (11). The SCAQMD has established that impacts to air quality are significant if there is a potential to contribute or cause localized exceedances of the federal and/or state ambient air quality standards (NAAQS/CAAQS). Collectively, these are referred to as Localized Significance Thresholds (LSTs). The SCAQMD established LSTs in response to the SCAQMD Governing Board's Environmental Justice Initiative I-41. LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard at the sensitive receptor. The SCAQMD states that lead agencies can use the LSTs as another indicator of significance in its air quality impact analyses. It should be noted that SCAQMD also states that projects that are statutorily or categorically exempt under CEQA would not be subject to LST analyses. Projects exempt from CEQA also include infill projects that meet the H&S Code provisions. As such, although not required for this Project, LST analysis is presented to further underscore that there are in fact no significant impacts associated with the Project.

The SCAQMD recommends that the nearest sensitive receptor be considered when determining the Project's potential to cause an individual or cumulatively significant impact. The nearest land use where an individual could remain for 24 hours to the Project site has been used to determine localized construction and operational air quality impacts for emissions of PM_{10} and $PM_{2.5}$ (since PM_{10} and $PM_{2.5}$ thresholds are based on a 24-hour averaging time). The nearest receptor used for evaluation of localized impacts of PM_{10} and $PM_{2.5}$ is location R4 represented by the existing residence at 27250 Buckaroo Circle, approximately 61 feet (19 meters) west of the Project site. As such, for evaluation of localized PM10 and PM2.5, a 25-meter distance will be used. Receptors in the Project study area shown on Exhibit 2.

As previously stated, and consistent with LST Methodology, the nearest industrial/commercial use to the Project site is used to determine construction and operational LST air impacts for emissions of NO_X and CO as the averaging periods for these pollutants are shorter (8 hours or less) and it is reasonable to assume that an individual could be present at these sites for periods of one to 8 hours. It should be noted that the existing residence (R4) is located at a closer distance than the nearest industrial/commercial use. As such, the same receptor will be used for evaluation of localized NO_X and CO.

1 The purpose of SCAQMD's Environmental Justice program is to ensure that everyone has the right to equal protection from air pollution and fair access to the decision-making process that works to improve the quality of air within their communities. Further, the SCAQMD defines Environmental Justice as "…equitable environmental policymaking and enforcement to protect the health of all residents, regardless of age, culture, ethnicity, gender, race, socioeconomic status, or geographic location, from the health effects of air pollution."

EXHIBIT 2: SENSITIVE RECEPTOR LOCATIONS



LOCALIZED CONSTRUCTION EMISSIONS

Table 5 identifies the localized impacts at the nearest receptor location in the vicinity of the Project. Outputs from the model runs for construction LSTs are provided in Attachment A. For analytical purposes, emissions associated with peak site preparation and grading activities are considered for purposes of LSTs since these phases represents the maximum localized emissions that would occur. Any other construction phases of development that overlap would result in lesser emissions and consequently lesser impacts than what is disclosed herein. As shown in Table 5, emissions resulting from the construction will not exceed the numerical thresholds of significance established by the SCAQMD for any criteria pollutant. Thus, a less than significant impact would occur for localized Project-related construction-source emissions and no mitigation is required.

LOCALIZED OPERATIONAL EMISSIONS

The proposed project is located on approximately 19.25 acres, and the total development is proposed to consist of 240 market-rate apartments (multifamily (low-rise, 2-3 floors) residential units. According to SCAQMD LST methodology, LSTs would apply to the operational phase of a proposed project, if the project includes stationary sources, or attracts mobile sources that may spend long periods queuing and idling at the site (e.g., transfer facilities and warehouse buildings). The proposed project does not include such uses, and thus, due to the lack of significant stationary source emissions, no LST analysis is needed for operations.

TABLE 5: PROJECT LOCALIZED CONSTRUCTION IMPACTS

On-Site Emissions	Emissions (lbs/day)			
	NO_X	CO	PM_{10}	$PM_{2.5}$
Site Preparation				
Maximum Daily Emissions	47.00	38.00	8.19	5.02
SCAQMD Localized Threshold	220	1,230	10	6
Threshold Exceeded?	NO	NO	NO	NO
Grading				
Maximum Daily Emissions	40.90	32.70	4.63	2.78
SCAQMD Localized Threshold	237	1,346	11	7
Threshold Exceeded?	NO	NO	NO	NO

AIR QUALITY IMPACTS – CONSISTENCY WITH THRESHOLD NO. 1

Would the Project conflict with or obstruct implementation of the applicable air quality plan?

The Project site is located within the SCAB, which is characterized by relatively poor air quality. The SCAQMD has jurisdiction over an approximately 10,743 square-mile area consisting of the four-county Basin and the Los Angeles County and Riverside County portions of what use to be referred to as the Southeast Desert Air Basin. In these areas, the SCAQMD is principally responsible for air pollution control, and works directly with the Southern California Association of Governments (SCAG), county transportation commissions, local governments, as well as state and federal agencies to reduce emissions from stationary, mobile, and indirect sources to meet state and federal ambient air quality standards.

Currently, these state and federal air quality standards are exceeded in most parts of the SCAB. In response, the SCAQMD has adopted a series of AQMPs to meet the state and federal ambient air quality standards. AQMPs are updated regularly in order to more effectively reduce emissions, accommodate growth, and to minimize any negative fiscal impacts of air pollution control on the economy.

In March 2017, the SCAQMD released the Final 2016 AQMP (2016 AQMP). The 2016 AQMP continues to evaluate current integrated strategies and control measures to meet the NAAQS, as well as explore new and innovative methods to reach its goals. Some of these approaches include utilizing incentive programs, recognizing existing co-benefit programs from other sectors, and developing a strategy with fair-share reductions at the federal, state, and local levels (17). Similar to the 2012 AQMP, the 2016 AQMP incorporates scientific and technological information and planning assumptions, including the 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (2016-2040 RTP/SCS), a planning document that supports the integration of land use and transportation to help the region meet the federal CAA requirements (10). The Project's consistency with the AQMP will be determined using the 2016 AQMP as discussed below.

Criteria for determining consistency with the AQMP are defined in Chapter 12, Section 12.2 and Section 12.3 of the 1993 CEQA Handbook (18). These indicators are discussed below.

The proposed Project will not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations or delay the timely attainment of air quality standards or the interim emissions reductions specified in the AQMP.

The violations under this criterion refer to the CAAQS and NAAQS. CAAQS and NAAQS violations would occur if regional or localized significance thresholds were exceeded.

CAAQS and NAAQS violations would occur if regional or localized significance thresholds were exceeded. As evaluated, the Project's regional and localized construction and operational-source emissions would not exceed applicable regional significance thresholds. As such, a less than significant impact is expected.

On the basis of the preceding discussion, the Project is determined to be consistent with the first criterion.

The Project will not exceed the assumptions in the AQMP based on the years of Project build-out phase.

The 2016 AQMP demonstrates that the applicable ambient air quality standards can be achieved within the timeframes required under federal law. Growth projections from local general plans adopted by cities in the district are provided to the SCAG, which develops regional growth forecasts, which are then used to develop future air quality forecasts for the AQMP. Development consistent with the growth projections in City of Menifee General Plan is considered to be consistent with the AQMP.

Peak day emissions generated by construction activities are largely independent of land use assignments, but rather are a function of development scope and maximum area of disturbance. Irrespective of the site's land use designation, development of the site to its maximum potential would likely occur, with disturbance of the entire site occurring during construction activities. As such, when considering that no emissions thresholds will be exceeded, a less than significant impact would result.

The City of Menifee General Plan designates the Project site as 8.1-14 du/ac Residential (8.1-14R) uses. The 8.1-14R designation allows for up to 8.1-14 dwelling units per acre. This land uses allows for Single-family attached and detached residences, including townhouses, stacked flats, courtyard homes, patio homes, and zero lot line homes (12).

As the Project includes development of 240 market-rate apartments (multifamily (low-rise, 2-3 floors) residential) and consists of 24 buildings containing 10 units per building with individual unit sizes ranging from one to three bedrooms and each unit would contain one to two car garages, the Project's proposed uses are consistent with the site's land use designations, and a general plan amendment will not be required.

On the basis of the preceding discussion, the Project is determined to be consistent with the second criterion.

As the proposed Project is consistent with site's land use designation, would not exceed any applicable regional or local thresholds, and would not result in or cause NAAQS or CAAQS violations, the Project is therefore considered to be consistent with the AQMP and a less than significant impact is expected.

AIR QUALITY IMPACTS – CONSISTENCY WITH THRESHOLD NO. 2

Would the Project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard?

The CAAQS designate the Project site as nonattainment for O_3, PM_{10}, and $PM_{2.5}$ while the NAAQS designates the Project site as nonattainment for O_3 and $PM_{2.5}$.

The SCAQMD has published a report on how to address cumulative impacts from air pollution: White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution (13). In this report the SCAQMD clearly states (Page D-3):

> *"…the SCAQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or EIR. The only case where the significance thresholds for project specific and cumulative impacts differ is the Hazard Index (HI) significance threshold for TAC emissions. The project specific (project increment) significance threshold is HI > 1.0 while the cumulative (facility-wide) is HI > 3.0. It should be noted that the HI is only one of three TAC emission significance thresholds considered (when applicable) in a CEQA analysis. The other two are the maximum individual cancer risk (MICR) and the cancer burden, both of which use the same significance thresholds (MICR of 10 in 1 million and cancer burden of 0.5) for project specific and cumulative impacts.*
>
> *Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant."*

Therefore, this analysis assumes that individual projects that do not generate operational or construction emissions that exceed the SCAQMD's recommended daily thresholds for project-specific impacts would also not cause a cumulatively considerable increase in emissions for those pollutants for which SCAB is in nonattainment, and, therefore, would not be considered to have a significant, adverse air quality impact. Alternatively, individual project-related construction and operational emissions that exceed SCAQMD thresholds for project-specific impacts would be considered cumulatively considerable.

Construction Impacts

The Project-specific evaluation of emissions presented in the preceding analysis demonstrates that proposed Project construction-source air pollutant emissions would not result in exceedances of regional thresholds. Therefore, the proposed Project construction-source emissions would be considered less than significant on a project-specific and cumulative basis.

Operational Impacts

The Project-specific evaluation of emissions presented in the preceding analysis demonstrates that proposed Project operational-source air pollutant emissions would not result in exceedances of regional thresholds. Therefore, the proposed Project operational-source emissions would be considered less than significant on a project-specific and cumulative basis.

AIR QUALITY IMPACTS – CONSISTENCY WITH THRESHOLD NO. 3

Would the expose sensitive receptors to substantial pollutant concentrations?

The potential impact of Project-generated air pollutant emissions at sensitive receptors has also been considered. Results of the LST analysis indicate that the Project will not exceed the SCAQMD localized significance thresholds during construction. Therefore, sensitive receptors would not be exposed to substantial pollutant concentrations during Project construction.

Additionally, the Project will not exceed the SCAQMD localized significance thresholds during operational activity. Therefore, sensitive receptors would not be exposed to substantial pollutant concentrations as the result of Project operations.

CO "HOT SPOT" ANALYSIS

As discussed below, the Project would not result in potentially adverse CO concentrations or "hot spots." Further, detailed modeling of Project-specific CO "hot spots" is not needed to reach this conclusion. An adverse CO concentration, known as a "hot spot", would occur if an exceedance of the state one-hour standard of 20 parts per million (ppm) or the eight-hour standard of 9 ppm were to occur.

It has long been recognized that CO hotspots are caused by vehicular emissions, primarily when idling at congested intersections. In response, vehicle emissions standards have become increasingly stringent in the last twenty years. Currently, the allowable CO emissions standard in California is a maximum of 3.4 grams/mile for passenger cars (there are requirements for certain vehicles that are more stringent). With the turnover of older vehicles, introduction of cleaner fuels, and implementation of increasingly sophisticated and efficient emissions control technologies, CO concentration in the SCAB is now designated as attainment. To establish a more accurate record of baseline CO concentrations affecting the SCAB, a CO "hot spot" analysis was conducted in 2003 for four busy intersections in Los Angeles at the peak morning and afternoon time periods. This "hot spot" analysis did not predict any violation of CO standards, as shown on Table 6.

TABLE 6: CO MODEL RESULTS

Intersection Location	CO Concentrations (ppm)		
	Morning 1-hour	Afternoon 1-hour	8-hour
Wilshire Boulevard/Veteran Avenue	4.6	3.5	3.7
Sunset Boulevard/Highland Avenue	4	4.5	3.5
La Cienega Boulevard/Century Boulevard	3.7	3.1	5.2
Long Beach Boulevard/Imperial Highway	3	3.1	8.4

Notes: Federal 1-hour standard is 35 ppm and the deferral 8-hour standard is 9.0 ppm.

Based on the SCAQMD's 2003 AQMP and the 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan), peak carbon monoxide concentrations in the SCAB were a result of unusual meteorological and topographical conditions and not a result of traffic volumes and congestion at a particular intersection. As evidence of this, for example, 8.4 ppm 8-hr CO concentration

measured at the Long Beach Blvd. and Imperial Hwy. intersection (highest CO generating intersection within the "hot spot" analysis), only 0.7 ppm was attributable to the traffic volumes and congestion at this intersection; the remaining 7.7 ppm were due to the ambient air measurements at the time the 2003 AQMP was prepared (20). In contrast, an adverse CO concentration, known as a "hot spot", would occur if an exceedance of the state one-hour standard of 20 parts per million (ppm) or the eight-hour standard of 9 ppm were to occur.

Similar considerations are also employed by other Air Districts when evaluating potential CO concentration impacts. More specifically, the Bay Area Air Quality Management District (BAAQMD) concludes that under existing and future vehicle emission rates, a given project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour (vph)—or 24,000 vph where vertical and/or horizontal air does not mix—in order to generate a significant CO impact (21). Traffic volumes generating the CO concentrations for the "hot spot" analysis is shown on Table 7. The busiest intersection evaluated was that at Wilshire Boulevard and Veteran Avenue, which has a daily traffic volume of approximately 100,000 vph and AM/PM traffic volumes of 8,062 vph and 7,719 vph respectively (20). The 2003 AQMP estimated that the 1-hour concentration for this intersection was 4.6 ppm; this indicates that, should the daily traffic volume increase four times to 400,000 vehicles per day, CO concentrations (4.6 ppm x 4= 18.4 ppm) would still not likely exceed the most stringent 1-hour CO standard (20.0 ppm).

TABLE 7: CO MODEL RESULTS

Intersection Location	Peak Traffic Volumes (vph)				
	Eastbound (AM/PM)	Westbound (AM/PM)	Southbound (AM/PM)	Northbound (AM/PM)	Total (AM/PM)
Wilshire Boulevard/Veteran Avenue	4,954/2,069	1,830/3,317	721/1,400	560/933	8,062/7,719
Sunset Boulevard/Highland Avenue	1,417/1,764	1,342/1,540	2,304/1,832	1,551/2,238	6,614/5,374
La Cienega Boulevard/Century Boulevard	2,540/2,243	1,890/2,728	1,384/2,029	821/1,674	6,634/8,674
Long Beach Boulevard/Imperial Highway	1,217/2,020	1,760/1,400	479/944	756/1,150	4,212/5,514

As shown on Table 8, the highest trips on a segment of road for the proposed Project during AM and PM traffic is 6,102 vph and 6,379 vph, respectively, on Beach Bl. (SR-39) & Orangethorpe Av. (10). As such, Project-related traffic volumes are less than the traffic volumes identified in the 2003 AQMP. The Project considered herein would not produce the volume of traffic required to generate a CO "hot spot" either in the context of the 2003 Los Angeles hot spot study or based on representative BAAQMD CO threshold considerations. Therefore, CO "hot spots" are not an environmental impact of concern for the Project. Localized air quality impacts related to mobile-source emissions would therefore be less than significant.

TABLE 8: PROJECT TRAFFIC VOLUMES

Intersection Location	Peak Traffic Volumes (vph)				
	Eastbound (AM/PM)	Westbound (AM/PM)	Southbound (AM/PM)	Northbound (AM/PM)	Total (AM/PM)
Sherman Rd. & McCall Bl.	0/0	1/4	12/39	41/25	54/68
Junipero Rd. & Heritage Lakes Dr.	14/46	0/0	0/0	29/18	43/64
Settlement St./Driveway 1 & Heritage Lakes Dr.	47/29	0/0	14/46	6/19	67/94
Menifee Rd. & Heritage Lakes Dr.	3/12	5/15	19/11	1/4	28/42

AIR QUALITY IMPACTS – CONSISTENCY WITH THRESHOLD NO. 4

Would the Project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

The potential for the Project to generate objectionable odors has also been considered. Land uses generally associated with odor complaints include:

- Agricultural uses (livestock and farming)
- Wastewater treatment plants
- Food processing plants
- Chemical plants
- Composting operations
- Refineries
- Landfills
- Dairies
- Fiberglass molding facilities

The Project does not contain land uses typically associated with emitting objectionable odors. Potential odor sources associated with the proposed Project may result from construction equipment exhaust and the application of asphalt and architectural coatings during construction activities and the temporary storage of typical solid waste (refuse) associated with the proposed Project's (long-term operational) uses. Standard construction requirements would minimize odor impacts from construct ion. The construction odor emissions would be temporary, short-term, and intermittent in nature and would cease upon completion of the respective phase of construction and is thus considered less than significant. It is expected that Project-generated refuse would be stored in covered containers and removed at regular intervals in compliance with the solid waste regulations. The proposed Project would also be required to comply with SCAQMD Rule 402 to prevent occurrences of public nuisances. Therefore, odors associated with the proposed Project construction and operations would be less than significant and no mitigation is required (14).

PROJECT GHG ANALYSIS

CLIMATE CHANGE SETTING

Global climate change (GCC) is the change in average meteorological conditions on the earth with respect to temperature, precipitation, and storms. The majority of scientists believe that the climate shift taking place since the Industrial Revolution is occurring at a quicker rate and magnitude than in the past. Scientific evidence suggests that GCC is the result of increased concentrations of GHGs in the earth's atmosphere, including carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated gases. The majority of scientists believe that this increased rate of climate change is the result of GHGs resulting from human activity and industrialization over the past 200 years.

An individual project like the proposed Project evaluated in this memo cannot generate enough GHG emissions to affect a discernible change in global climate. However, the proposed Project may participate in the potential for GCC by its incremental contribution of GHGs combined with the cumulative increase of all other sources of GHGs, which when taken together constitute potential influences on GCC. Because these changes may have serious environmental consequences, this memo will evaluate the potential for the proposed Project to have a significant effect upon the environment as a result of its potential contribution to the greenhouse effect.

GCC refers to the change in average meteorological conditions on the earth with respect to temperature, wind patterns, precipitation and storms. Global temperatures are regulated by naturally occurring atmospheric gases such as water vapor, CO_2, N_2O, CH_4, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). These particular gases are important due to their residence time (duration they stay) in the atmosphere, which ranges from 10 years to more than 100 years. These gases allow solar radiation into the earth's atmosphere, but prevent radioactive heat from escaping, thus warming the earth's atmosphere. GCC can occur naturally as it has in the past with the previous ice ages.

Gases that trap heat in the atmosphere are often referred to as GHGs. GHGs are released into the atmosphere by both natural and anthropogenic activity. Without the natural GHG effect, the earth's average temperature would be approximately 61 degrees Fahrenheit (°F) cooler than it is currently. The cumulative accumulation of these gases in the earth's atmosphere is considered to be the cause for the observed increase in the earth's temperature.

For the purposes of this analysis, emissions of CO_2, CH_4, and N_2O were evaluated because these gases are the primary contributors to GCC from development projects. Although there are other substances such as fluorinated gases that also contribute to GCC, these fluorinated gases were not evaluated as their sources are not well-defined and do not contain accepted emissions factors or methodology to accurately calculate these gases.

REGULATORY SETTING

Executive Order S-3-05

Former California Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S-3-05, the following reduction targets for GHG emissions:

- By 2010, reduce GHG emissions to 2000 levels.

- By 2020, reduce GHG emissions to 1990 levels.
- By 2050, reduce GHG emissions to 80% below 1990 levels.

The 2050 reduction goal represents what some scientists believe is necessary to reach levels that will stabilize the climate. The 2020 goal was established to be a mid-term target. Because this is an executive order, the goals are not legally enforceable for local governments or the private sector.

Assembly Bill (AB) 32

The California State Legislature enacted AB 32, which requires that GHGs emitted in California be reduced to 1990 levels by the year 2020. "GHGs" as defined under AB 32 include CO_2, CH_4, N_2O, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Since AB 32 was enacted, a seventh chemical, nitrogen trifluoride, has also been added to the list of GHGs. CARB is the state agency charged with monitoring and regulating sources of GHGs. Pursuant to AB 32, CARB adopted regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions. AB 32 states the following:

"Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems."

CARB approved the 1990 GHG emissions level of 427 million metric ton of CO_2 equivalent per year ($MMTCO_2e$) on December 6, 2007 (15). Therefore, emissions generated in California in 2020 are required to be equal to or less than 427 $MMTCO_2e$. Emissions in 2020 in a "business as usual" (BAU) scenario were estimated to be 596 $MMTCO_2e$, which do not account for reductions from AB 32 regulations (16). At that level, a 28.4% reduction was required to achieve the 427 MMTCO2e 1990 inventory. In October 2010, CARB prepared an updated BAU 2020 forecast to account for the recession and slower forecasted growth. The forecasted inventory without the benefits of adopted regulation is now estimated at 545 $MMTCO_2e$. Therefore, under the updated forecast, a 21.7% reduction from BAU is required to achieve 1990 levels (17).

Progress in Achieving AB 32 Targets and Remaining Reductions Required

The State has made steady progress in implementing AB 32 and achieving targets included in Executive Order S-3-05. The progress is shown in updated emission inventories prepared by CARB for 2000 through 2012 (18). The State has achieved the Executive Order S-3-05 target for 2010 of reducing GHG emissions to 2000 levels. As shown below, the 2010 emission inventory achieved this target.

- 1990: 427 $MMTCO_2e$ (AB 32 2020 target)
- 2000: 463 $MMTCO_2e$ (an average 8% reduction needed to achieve 1990 base)
- 2010: 450 $MMTCO_2e$ (an average 5% reduction needed to achieve 1990 base)

CARB has also made substantial progress in achieving its goal of achieving 1990 emissions levels by 2020. As described earlier in this section, CARB revised the 2020 BAU inventory forecast to account for new lower growth projections, which resulted in a new lower reduction from BAU to achieve the 1990 base. The previous reduction from 2020 BAU needed to achieve 1990 levels was 28.4% and the latest reduction from 2020 BAU is 21.7%.

- 2020: 545 $MMTCO_2e$ BAU (an average 21.7% reduction from BAU needed to achieve 1990 base)

Senate Bill (SB) 32

On September 8, 2016, Governor Jerry Brown signed the SB 32 and its companion bill, AB 197. SB 32 requires the state to reduce statewide GHG emissions to 40% below 1990 levels by 2030, a reduction target that was first introduced in Executive Order B-30-15. The new legislation builds upon the AB 32 goal of 1990 levels by 2020 and provides an intermediate goal to achieving S-3-05, which sets a statewide GHG reduction target of 80% below 1990 levels by 2050. AB 197 creates a legislative committee to oversee regulators to ensure that CARB not only responds to the Governor, but also the Legislature (19).

AB 197

A condition of approval for SB 32 was the passage of AB 197. AB 197 requires that CARB consider the social costs of GHG emissions and prioritize direct reductions in GHG emissions at mobile sources and large stationary sources. AB 197 also gives the California legislature more oversight over CARB through the addition of two legislatively appointed members to the CARB Board and the establishment a legislative committee to make recommendations about CARB programs to the legislature.

Executive Order B-55-18 and SB 100

Executive Order B-55-18 and SB 100. SB 100 and Executive Order B-55-18 were signed by Governor Brown on September 10, 2018. Under the existing RPS, 25% of retail sales are required to be from renewable sources by December 31, 2016, 33% by December 31, 2020, 40% by December 31, 2024, 45% by December 31, 2027, and 50% by December 31, 2030. SB 100 raises California's RPS requirement to 50% renewable resources target by December 31, 2026, and to achieve a 60% target by December 31, 2030. SB 100 also requires that retail sellers and local publicly owned electric utilities procure a minimum quantity of electricity products from eligible renewable energy resources so that the total kilowatt hours of those products sold to their retail end-use customers achieve 44% of retail sales by December 31, 2024, 52% by December 31, 2027, and 60% by December 31, 2030. In addition to targets under AB 32 and SB 32, Executive Order B-55-18 establishes a carbon neutrality goal for the state of California by 2045; and sets a goal to maintain net negative emissions thereafter. The Executive Order directs the California Natural Resources Agency (CNRA), California Environmental Protection Agency (CalEPA), the Department of Food and Agriculture (CDFA), and CARB to include sequestration targets in the Natural and Working Lands Climate Change Implementation Plan consistent with the carbon neutrality goal.

Title 24 California Code of Regulations (CCR)

California Code of Regulations (CCR) Title 24 Part 6: The California Energy Code was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption.

The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. CCR, Title 24, Part 11: California Green Building Standards Code (CALGreen) is a comprehensive and uniform regulatory code for all residential, commercial, and school buildings that went in effect on August 1, 2009, and is administered by the California Building Standards Commission.

CALGreen is updated on a regular basis, with the most recent approved update consisting of the 2022 California Green Building Code Standards that will be effective on January 1, 2023[2]. As construction of the Project is anticipated to be completed in 2025, it is presumed that the Project would be required to comply with the Title 24 standards in place at that time.

SCAQMD

SCAQMD is the agency responsible for air quality planning and regulation in the SCAB. The SCAQMD addresses the impacts to climate change of projects subject to SCAQMD permit as a lead agency if they are the only agency having discretionary approval for the project and acts as a responsible agency when a land use agency must also approve discretionary permits for the project. The SCAQMD acts as an expert commenting agency for impacts to air quality. This expertise carries over to GHG emissions, so the agency helps local land use agencies through the development of models and emission thresholds that can be used to address GHG emissions.

In 2008, SCAQMD formed a Working Group to identify GHG emissions thresholds for land use projects that could be used by local lead agencies in the SCAB. The Working Group developed several different options that are contained in the SCAQMD Draft Guidance Document – Interim CEQA GHG Significance Threshold, that could be applied by lead agencies. The working group has not provided additional guidance since release of the interim guidance in 2008. The SCAQMD Board has not approved the thresholds; however, the Guidance Document provides substantial evidence supporting the approaches to significance of GHG emissions that can be considered by the lead agency in adopting its own threshold. The current interim thresholds consist of the following tiered approach:

- Tier 1 consists of evaluating whether or not the project qualifies for any applicable exemption under CEQA.
- Tier 2 consists of determining whether the project is consistent with a GHG reduction plan. If a project is consistent with a qualifying local GHG reduction plan, it does not have significant GHG emissions.
- Tier 3 consists of screening values, which the lead agency can choose, but must be consistent with all projects within its jurisdiction. A project's construction emissions are averaged over 30 years and are added to the project's operational emissions. If a project's emissions are below one of the following screening thresholds, then the project is less than significant:
    - Residential and commercial land use: 3,000 metric ton of CO_2 equivalent ($MTCO_2e/yr$)

[2] The 2022 California Green Building Standard Code will be published July 1, 2022.

  - Industrial land use: 10,000 $MTCO_2e/yr$
  - Based on land use type: residential: 3,500 $MTCO_2e/yr$; commercial: 1,400 $MTCO_2e/yr$; or mixed use: 3,000 $MTCO_2e/yr$
- Tier 4 has the following options:
  - Option 1: Reduce Business-as-Usual (BAU) emissions by a certain percentage; this percentage is currently undefined.
  - Option 2: Early implementation of applicable AB 32 Scoping Plan measures
  - Option 3: 2020 target for service populations (SP), which includes residents and employees: 4.8 $MTCO_2e$ per SP per year for projects and 6.6 $MTCO_2e$ per SP per year for plans;
  - Option 3, 2035 target: 3.0 $MTCO_2e$ per SP per year for projects and 4.1 $MTCO_2e$ per SP per year for plans
- Tier 5 involves mitigation offsets to achieve target significance threshold.

The SCAQMD's interim thresholds used the Executive Order S-3-05-year 2050 goal as the basis for the Tier 3 screening level. Achieving the Executive Order's objective would contribute to worldwide efforts to cap CO_2 concentrations at 450 ppm, thus stabilizing global climate.

SCAQMD only has authority over GHG emissions from development projects that include air quality permits. At this time, it is unknown if the project would include stationary sources of emissions subject to SCAQMD permits. Notwithstanding, if the Project requires a stationary permit, it would be subject to the applicable SCAQMD regulations.

SCAQMD Regulation XXVII, adopted in 2009 includes the following rules:

- Rule 2700 defines terms and post global warming potentials.
- Rule 2701, Southern California (SoCal) Climate Solutions Exchange, establishes a voluntary program to encourage, quantify, and certify voluntary, high quality certified GHG emission reductions in the SCAQMD.
- Rule 2702, GHG Reduction Program created a program to produce GHG emission reductions within the SCAQMD. The SCAQMD will fund projects through contracts in response to requests for proposals or purchase reductions from other parties.

SCAQMD is the agency responsible for air quality planning and regulation in the SCAB. The SCAQMD addresses the impacts to climate change of projects subject to SCAQMD permit as a lead agency if they are the only agency having discretionary approval for the project and acts as a responsible agency when a land use agency must also approve discretionary permits for the project. The SCAQMD acts as an expert commenting agency for impacts to air quality. This expertise carries over to GHG emissions, so the agency helps local land use agencies through the development of models and emission thresholds that can be used to address GHG emissions.

GHG IMPACTS

Standards of Significance

According to the CEQA Guidelines Appendix G thresholds, to determine whether impacts from GHG emissions are significant. Would the project:

- **Threshold 1**: Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?
- **Threshold 2**: Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs?

The evaluation of an impact under CEQA requires measuring data from a project against both existing conditions and a "threshold of significance." For establishing significance thresholds, the Office of Planning and Research's amendments to the CEQA Guidelines Section 15064.7(c) state "[w]hen adopting thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies, or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence."

CEQA Guidelines Section 15064.4(a) further states, ". . . A lead agency shall have discretion to determine, in the context of a particular project, whether to: (1) Use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use . . .; or (2) Rely on a qualitative analysis or performance-based standards."

CEQA Guidelines Section 15064.4 provides that a lead agency should consider the following factors, among others, in assessing the significance of impacts from greenhouse gas emissions:

- **Consideration #1:** The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting.
- **Consideration #2:** Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
- **Consideration #3:** The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such regulations or requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of greenhouse gas emissions. In determining the significance of impacts, the lead agency may consider a project's consistency with the State's long-term climate goals or strategies, provided that substantial evidence supports the agency's analysis of how those goals or strategies address the project's incremental contribution to climate change and its conclusion that the project's incremental contribution is not cumulatively considerable.

Discussion on Establishment of Significance Thresholds

Based on the foregoing guidance, the City of Menifee has elected to rely on compliance with a local air district threshold in the determination of significance of Project-related GHG emissions.

Specifically, the City has selected the interim 3,000 $MTCO_2e$ per year threshold recommended by SCAQMD staff for residential and commercial sector projects against which to compare Project-related GHG emissions.

The 3,000 $MTCO_2e$ per year threshold is based on a 90 percent emission "capture" rate methodology. Prior to its use by the SCAQMD, the 90 percent emissions capture approach was one of the options suggested by the California Air Pollution Control Officers Association (CAPCOA) in their CEQA & Climate Change white paper (2008). A 90 percent emission capture rate means that unmitigated GHG emissions from the top 90 percent of all GHG-producing projects within a geographic area – the SCAB in this instance – would be subject to a detailed analysis of potential environmental impacts from GHG emissions, while the bottom 10 percent of all GHG-producing projects would be excluded from detailed analysis. A GHG significance threshold based on a 90 percent emission capture rate is appropriate to address the long-term adverse impacts associated with global climate change because medium and large projects will be required to implement measures to reduce GHG emissions, while small projects, which are generally infill development projects that are not the focus of the State's GHG reduction targets, are allowed to proceed. Further, a 90 percent emission capture rate sets the emission threshold low enough to capture a substantial proportion of future development projects and demonstrate that cumulative emissions reductions are being achieved while setting the emission threshold high enough to exclude small projects that will, in aggregate, contribute approximate 1 percent of projected statewide GHG emissions in the Year 2050 (20).

In setting the threshold at 3,000 $MTCO_2e$ per year, SCAQMD researched a database of projects kept by the Governor's Office of Planning and Research (OPR). That database contained 798 projects, 87 of which were removed because they were very large projects and/or outliers that would skew emissions values too high, leaving 711 as the sample population to use in determining the 90th percentile capture rate. The SCAQMD analysis of the 711 projects within the sample population combined commercial, residential, and mixed-use projects. Emissions from each of these projects were calculated by SCAQMD to provide a consistent method of emissions calculations across the sample population and from projects within the sample population. In calculating the emissions, the SCAQMD analysis determined that the 90th percentile ranged between 2,983 to 3,143 $MTCO_2e$ per year. The SCAQMD set their significance threshold at the low-end value of the range when rounded to the nearest hundred tons of emissions (i.e., 3,000 $MTCO_2e$ per year) to define small projects that are considered less than significant and do not need to provide further analysis.

The City understands that the 3,000 $MTCO_2e$ per year threshold for residential/commercial uses was proposed by SCAQMD a decade ago and was adopted as an interim policy; however, no permanent, superseding policy or threshold has since been adopted. The 3,000 $MTCO_2e$ per year threshold was developed and recommended by SCAQMD, an expert agency, based on substantial evidence as provided in the Draft Guidance Document – Interim CEQA Greenhouse Gas Significance Threshold (2008) document and subsequent Working Group meetings (latest of which occurred in 2010). SCAQMD has not withdrawn its support of the interim threshold and all documentation supporting the interim threshold remains on the SCAQMD website on a page that provides guidance to CEQA practitioners for air quality analysis (and where all SCAQMD significance thresholds for regional and local criteria pollutants and toxic air contaminants also are listed). Further, as stated by SCAQMD, this threshold "uses the Executive Order S-3-05 goal

[80 percent below 1990 levels by 2050] as the basis for deriving the screening level" and, thus, remains valid for use in 2022 (20). Lastly, this threshold has been used for hundreds, if not thousands of GHG analyses performed for projects located within the SCAQMD jurisdiction.

Thus, for purposes of analysis in this analysis, if Project-related GHG emissions do not exceed the 3,000 $MTCO_2e$ per year threshold, then Project-related GHG emissions would clearly have a less-than-significant impact pursuant to Threshold GHG-1. On the other hand, if Project-related GHG emissions exceed 3,000 $MTCO_2e$ per year, the Project would be considered a substantial source of GHG emissions.

GHG IMPACTS – CONSISTENCY WITH THRESHOLD NO. 1

Would the Project have the potential to generate direct or indirect GHG emissions that would result in a significant impact on the environment?

PROJECT GHG EMISSIONS

The estimated GHG emissions for the Project are summarized on Table 9. The estimated GHG emission include emissions from Carbon Dioxide (CO_2), Methane (CH_4), Nitrous Oxide (N_20), and Refrigerants (R). As shown on Table 9, the Project would generate a total of approximately 2,645.54 $MTCO_2e$/yr.

TABLE 9: TOTAL PROJECT GHG EMISSIONS

Source	Emission (lbs/day)				
	CO_2	CH_4	N_20	R	Total CO_2E
Annual construction-related emissions amortized over 30 years	40.71	1.33E-03	1.33E-03	3.43E-02	41.17
Mobile Source	1,931.00	0.09	0.10	3.32	1,965.00
Area Source	55.70	< 0.005	< 0.005	0.00	55.80
Energy Source	502.00	0.05	< 0.005	0.00	504.00
Water	13.60	0.32	0.01	0.00	23.90
Waste	15.80	1.58	0.00	0.00	55.40
Refrigerants	0.00	0.00	0.00	0.27	0.27
Total CO_2E (All Sources)	2,645.54				

A numerical threshold for determining the significance of GHG emissions in the SCAB has not been established by the SCAQMD for projects where it is not the lead agency. As an interim threshold based on guidance provided in the CAPCOA *CEQA and Climate Change* handbook, the City has opted to use a non-zero threshold approach based on Approach 2 of the handbook. Threshold 2.5 (Unit-Based Thresholds Based on Market Capture) establishes a numerical threshold based on capture of approximately 90% of emissions from future development. The latest threshold developed by SCAQMD using this method is 3,000 $MTCO_2e$/yr for all projects (21).

The Project would result in approximately 2,645.54 $MTCO_2e$/yr; the proposed Project would not exceed the SCAQMD's numeric threshold of 3,000 $MTCO_2e$/yr. Thus, the Project would result in a less than significant impact with respect to GHG emissions.

GHG IMPACTS – CONSISTENCY WITH THRESHOLD NO. 2

Would the Project have the potential to conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs?

Pursuant to 15604.4 of the CEQA Guidelines, a lead agency may rely on qualitative analysis or performance-based standards to determine the significance of impacts from GHG emissions (22).

In November 2017, CARB released the Final 2017 Scoping Plan Update, which identifies the State's post-2020 reduction strategy. The Project would not conflict with any of the 2017 Scoping Plan elements as any regulations adopted would apply directly or indirectly to the Project. Further, recent studies show that the State's existing and proposed regulatory framework will allow the State to reduce its GHG emissions level to 40% below 1990 levels by 2030 (23). The Project would not conflict with any of the 2017 Scoping Plan elements. Further, recent studies show that the State's existing and proposed regulatory framework will allow the State to reduce its GHG emissions level to 40% below 1990 levels by 2030 (23).

Finally, the Project is consistent with the general plan land use designation, density, building intensity, and applicable policies specified for the Project area in SCAG's Sustainable Community Strategy/ Regional Transportation Plan, which pursuant to SB 375 calls for the integration of transportation, land-use and housing policies to plan for achievement of the GHG-emissions target for the region. Thus, a less than significant impact related to GHG emissions from Project construction and operation would occur and no mitigation is required.

PROJECT ENERGY ANALYSIS

Vehicle fuel efficiencies for light-duty-auto vehicles (LDA), light-duty-trucks (LDT1), and light-duty-trucks (LDT2) were estimated using information generated within the 2021 version of the EMFAC developed by the California Air Resources Board (CARB). EMFAC2021 is a mathematical model that was developed to calculate emission rates, fuel consumption, and VMT from motor vehicles that operate on highways, freeways, and local roads in California and is commonly used by CARB to project changes in future emissions from on-road mobile sources (9). EMFAC2021 was run for the LDA, LDT1, and LDT2 vehicle class within the California Riverside South-Coast sub-area for the 2023, 2024, and 2025 calendar year. Data from EMFAC2021 is shown in Attachment C.

CONSTRUCTION ENERGY DEMANDS

CONSTRUCTION EQUIPMENT ELECTRICITY USAGE ESTIMATES

The *2022 National Construction Estimator* identifies a typical power cost per 1,000 sf of construction per month of $2.41, which was used to calculate the Project's total construction power cost (24).

Based on Table 10, the total power cost of the on-site electricity usage during the construction of the Project is estimated to be approximately $46,479.78. As shown on Table 11, the total

electricity usage from on-site Project construction related activities is estimated to be approximately 352,868 kWh.

TABLE 10: PROJECT CONSTRUCTION POWER COST

Land Use	Power Cost (per 1,000 SF of building per month of construction)	Total Building Size (1,000 SF)	Construction Duration (months)	Project Construction Power Cost
Multi-Family Residential	$2.41	653.401	23	$36,218.03
Parking Lot	$2.41	185.130	23	$10,261.76
			TOTAL PROJECT CONSTRUCTION POWER COST	***$46,479.78***

TABLE 11: PROJECT CONSTRUCTION ELECTRICITY USAGE

Land Use	Cost per kWh[1]	Project Construction Electricity Usage (kWh)
Multi-Family Residential	$0.13	274,962
Parking Lot	$0.13	77,906
TOTAL PROJECT CONSTURCTION ELECTRICTY USAGE (kWh)		***352,868***

[1]Assumes the Project will be under the GS-1 General Service Rate under Southern California Edison

CONSTRUCTION EQUIPMENT FUEL ESTIMATES

As presented in Table 12, Project construction activities would consume an estimated 64,288 gallons of diesel fuel. Project construction would represent a "single-event" diesel fuel demand and would not require on-going or permanent commitment of diesel fuel resources for this purpose.

CONSTRUCTION WORKER FUEL ESTIMATES

With respect to estimated VMT, the construction worker trips would generate an estimated 1,400,265 VMT. Based on CalEEMod methodology, it is assumed that 50% of all vendor trips are from LDA, 25% are from LDT1, and 25% are from LDT2. Data regarding Project related construction worker trips were based on CalEEMod defaults for the land use type and project location which are also utilized within the air quality assessment and CalEEMod outputs contained herein.

As shown on Table 13, it is estimated that 51,307 gallons of fuel will be consumed related to construction worker trips during full construction of the proposed Project. Project construction worker trips would represent a "single-event" gasoline fuel demand and would not require on-going or permanent commitment of fuel resources for this purpose.

TABLE 12: PROJECT CONSTRUCTION EQUIPMENT FUEL CONSUMPTIONS ESTIMATES

Activity/Duration	Duration (Days)	Equipment	HP Rating	Quantity	Usage Hours	Load Factor	HP-hrs/day	Total Fuel Consumption (gal. diesel fuel)
Site Preparation	10	Rubber Tired Dozers	367	3	8	0.4	3,523	1,904
		Crawler Tractors	87	4	8	0.43	1,197	647
		Excavators	36	2	8	0.38	219	355
		Graders	148	1	8	0.41	485	787
Grading	30	Rubber Tired Dozers	367	1	8	0.4	1,174	1,904
		Scrapers	423	2	8	0.48	3,249	5,268
		Crawler Tractors	87	2	8	0.43	599	971
		Cranes	367	1	8	0.29	851	19,330
		Forklifts	82	3	8	0.2	394	8,936
Building Construction	420	Generator Sets	14	1	8	0.74	83	1,882
		Tractors/Loaders/Backhoes	84	3	8	0.37	746	16,934
		Welders	46	1	8	0.45	166	3,760
		Pavers	81	2	8	0.42	544	588
Paving	20	Paving Equipment	89	2	8	0.36	513	554
		Rollers	36	2	8	0.38	219	237
Architectural Coating	30	Air Compressors	37	1	8	0.48	142	230
							CONSTRUCTION FUEL DEMAND (GALLONS DIESEL FUEL)	***64,288***

TABLE 13: CONSTRUCTION WORKER FUEL CONSUMPTION ESTIMATES (1 OF 2)

Year	Construction Activity	Duration (Days)	Worker Trips/Day	Trip Length (miles)	VMT	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption
2023				LDA			
	Site Preparation	10	9	18.5	1,665	30.60	54
	Grading	30	10	18.5	5,550	30.60	181
	Building Construction	188	87	18.5	302,586	30.60	9,888
				LDT1			
	Site Preparation	10	5	18.5	925	24.15	38
	Grading	30	5	18.5	2,775	24.15	115
	Building Construction	188	44	18.5	153,032	24.15	6,336
				LDT2			
	Site Preparation	10	5	18.5	925	23.88	39
	Grading	30	5	18.5	2,775	23.88	116
	Building Construction	188	44	18.5	153,032	23.88	6,408
2024				LDA			
	Building Construction	232	87	18.5	373,404	31.51	11,852
	Paving	20	8	18.5	2,960	31.51	94
	Architectural Coating	10	18	18.5	3,330	31.51	106
				LDT1			
	Building Construction	232	44	18.5	188,848	24.62	7,670
	Paving	20	4	18.5	1,480	24.62	60
	Architectural Coating	10	9	18.5	1,665	24.62	68
				LDT2			
	Building Construction	232	44	18.5	188,848	24.57	7,685
	Paving	20	4	18.5	1,480	24.57	60
	Architectural Coating	10	9	18.5	1,665	24.57	68

TABLE 13: CONSTRUCTION WORKER FUEL CONSUMPTION ESTIMATES (2 OF 2)

Year	Construction Activity	Duration (Days)	Worker Trips/Day	Trip Length (miles)	VMT	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption
				LDA			
2025	Architectural Coating	20	18	18.5	6,660	32.49	205
				LDT1			
	Architectural Coating	20	9	18.5	3,330	25.14	132
				LDT2			
	Architectural Coating	20	9	18.5	3,330	25.29	132
						TOTAL CONSTRUCTION WORKER FUEL CONSUMPTION	***51,307***

CONSTRUCTION VENDOR/HAULING FUEL ESTIMATES

With respect to estimated VMT, the construction vendor trips would generate an estimated 96,084 VMT. It is assumed that 50% of all vendor trips are from medium-heavy duty trucks (MHDT) and 50% of vendor trips are from heavy-heavy duty trucks (HHDT). As shown on Table 14, it is estimated that 13,571 gallons of fuel will be consumed related to construction vendor trips (medium duty trucks) during full construction of the Project. Project construction vendor trips would represent a "single- event" diesel fuel demand and would not require on-going or permanent commitment of diesel fuel resources for this purpose.

TABLE 14: CONSTRUCTION VENDOR FUEL CONSUMPTION ESTIMATES (TRUCKS)

Year	Construction Activity	Duration (Days)	Worker Trips/Day	Trip Length (miles)	VMT	Average Vehicle Fuel Economy	Estimated Fuel Consumptio
				MHDT			
2023	Site Preparation	10	1	10.2	102	8.42	12
	Grading	30	1	10.2	306	8.42	36
	Building Construction	188	11	10.2	21,094	8.42	2,505
				HHDT (Vendor)			
	Site Preparation	10	1	10.2	102	6.04	17
	Grading	30	1	10.2	306	6.04	51
	Building Construction	188	11	10.2	21,094	6.04	3,491
				MHDT			
2024	Building Construction	232	11	10.2	26,030	8.49	3,065
	Paving	20	1	10.2	204	8.49	24
	Architectural Coating	10	1	10.2	102	8.49	12
				HHDT (Vendor)			
	Building Construction	232	11	10.2	26,030	6.12	4,253
	Paving	20	1	10.2	204	6.12	33
	Architectural Coating	10	1	10.2	102	6.12	17
				MHDT			
2025	Architectural Coating	20	1	10.2	204	8.60	24
				HHDT (Vendor)			
	Architectural Coating	20	1	10.2	204	6.22	33
				TOTAL CONSTRUCTION WORKER FUEL CONSUMPTION			***13,571***

CONSTRUCTION ENERGY DEMANDS SUMMARY

Construction equipment use of fuel would not be atypical for the type of construction proposed because there are no aspects of the Project's proposed construction process that are unusual or energy-intensive, and Project construction equipment would conform to the applicable CARB emissions standards, acting to promote equipment fuel efficiencies.

CCR Title 13, Title 13, Motor Vehicles, section 2449(d)(3) Idling, limits idling times of construction vehicles to no more than 5 minutes, thereby precluding unnecessary and wasteful consumption of fuel due to unproductive idling of construction equipment. Best Available Control Measures (BACMs) inform construction equipment operators of this requirement.

With regard to construction worker trips, the 2021 IEPR released by the CEC has shown that fuel efficiencies are getting better within on and off-road vehicle engines due to more stringent government requirements. As supported by the preceding discussions, Project construction energy consumption would not be considered inefficient, wasteful, or otherwise unnecessary.

OPERATIONAL ENERGY DEMANDS

TRANSPORTATION ENERGY DEMANDS

Energy that would be consumed by Project-generated traffic is a function of total VMT and estimated vehicle fuel economies of vehicles accessing the Project site. The VMT per vehicle class can be determined by the vehicle fleet mix and the total VMT. As with worker and vendors trips, operational vehicle fuel efficiencies were estimated using information generated within EMFAC2021 developed by CARB (25). As summarized on Table 15 the Project will result in a 5,268,712 annual VMT and an estimated annual fuel consumption of 218,267 gallons of fuel.

OPERATIONAL ENERGY DEMANDS SUMMARY

The Project proposes conventional residential uses reflecting contemporary energy efficient/energy conserving designs and operational programs. The Project does not propose uses that are inherently energy intensive and the energy demands in total would be comparable to other residential land use projects of similar scale and configuration.

The Project will comply with the applicable Title 24 standards which will ensure that the Project energy demands would not be inefficient, wasteful, or otherwise unnecessary.

The Project would not cause or result in the need for additional energy producing or transmission facilities. The Project would not engage in wasteful or inefficient uses of energy and aims to achieve energy conservations goals within the State of California. As supported by the preceding analyses, Project operations would not result in the inefficient, wasteful, or unnecessary consumption of energy.

TABLE 15: PROJECT-GENERATED VEHICLE TRAFFIC ANNUAL FUEL CONSUMPTION

Vehicle Type	Average Vehicle Fuel Economy (mpg)	Annual VMT	Estimated Annual Fuel Consumption (gallons)
LDA	32.49	2,615,709	80,507
LDT1	25.14	205,851	8,188
LDT2	25.29	1,060,440	41,930
MDV	20.32	841,347	41,407
LHDT1	16.52	168,829	10,220
LHDT2	15.75	47,942	3,044
MHDT	8.60	76,041	8,841
HHDT	6.22	83,188	13,379
OBUS	6.58	3,222	490
UBUS	4.54	2,055	453
MCY	41.89	123,472	2,948
SBUS	6.42	7,063	1,100
MH	5.82	33,554	5,760
	TOTAL (ALL VEHICLES)	***5,268,712***	***218,267***

PROJECT ENERGY DEMANDS

As shown on Table 16, the Project operational energy demands are estimated to result in a 4,072,853 kBTU/year of natural gas; and 1,805,404 kWh/year of electricity. Natural gas would be supplied to the Project by Southern California Gas; electricity would be supplied by Southern California Edison.

TABLE 16: PROJECT ANNUAL OPERATIONAL ENERGY DEMAND SUMMARY

Land Use	Natural Gas Demand (kBTU/year)	Electricity Demand (kWh/year)
Multi-Family Residential	4,072,853	1,643,230
Parking Lot	0	162,174
TOTAL PROJECT ENERGY DEMAND	***4,072,853***	***1,805,404***

AIR QUALITY, GREENHOUSE GAS, ENERGY CONCLUSION

Results of the assessment indicate that the Project is not anticipated to result in a significant impact during construction or operational activities associated with air quality, greenhouse gas and energy and no mitigation is required.

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ATTACHMENT A
CALEEMOD PROPOSED PROJECT EMISSIONS MODEL OUTPUTS

14854 Village at Junipero Detailed Report

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1.1. Basic Project Information

Data Field	Value
Project Name	14854 Village at Junipero
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.50
Precipitation (days)	0.20
Location	33.72435737441545, -117.15638332470306
County	Riverside-South Coast
City	Menifee
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5517
EDFZ	11
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Apartments Low Rise	240	Dwelling Unit	15.0	254,400	0.00	—	775	—
Parking Lot	480	Space	4.25	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.11	4.31	41.1	34.5	0.06	1.96	2.94	4.90	1.80	1.04	2.85	—	7,057	7,057	0.29	0.21	12.8	7,087
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.93	55.1	47.1	39.2	0.06	2.53	5.90	8.43	2.33	2.74	5.07	—	7,033	7,033	0.29	0.21	0.33	7,062
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.93	3.02	12.3	17.8	0.02	0.54	1.66	2.21	0.50	0.46	0.96	—	3,672	3,672	0.15	0.13	3.26	3,718
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.35	0.55	2.24	3.25	< 0.005	0.10	0.30	0.40	0.09	0.08	0.18	—	608	608	0.02	0.02	0.54	616

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2023	5.11	4.31	41.1	34.5	0.06	1.96	2.94	4.90	1.80	1.04	2.85	—	7,057	7,057	0.29	0.21	12.8	7,087
2024	2.55	2.20	13.8	28.9	0.03	0.55	2.44	2.99	0.50	0.58	1.08	—	5,782	5,782	0.23	0.21	11.7	5,861
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	5.93	4.99	47.1	39.2	0.06	2.53	5.90	8.43	2.33	2.74	5.07	—	7,033	7,033	0.29	0.21	0.33	7,062
2024	2.50	55.1	13.9	25.4	0.03	0.55	2.44	2.99	0.50	0.58	1.08	—	5,581	5,581	0.23	0.21	0.30	5,649
2025	0.37	55.1	1.40	3.55	< 0.005	0.04	0.46	0.50	0.03	0.11	0.14	—	673	673	0.03	0.03	0.05	681
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	1.93	1.65	12.3	17.8	0.02	0.54	1.66	2.21	0.50	0.46	0.96	—	3,664	3,664	0.15	0.11	2.90	3,704
2024	1.65	2.95	9.31	17.2	0.02	0.37	1.57	1.94	0.34	0.37	0.71	—	3,672	3,672	0.15	0.13	3.26	3,718
2025	0.02	3.02	0.08	0.20	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	37.2	37.2	< 0.005	< 0.005	0.05	37.7
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.35	0.30	2.24	3.25	< 0.005	0.10	0.30	0.40	0.09	0.08	0.18	—	607	607	0.02	0.02	0.48	613
2024	0.30	0.54	1.70	3.13	< 0.005	0.07	0.29	0.35	0.06	0.07	0.13	—	608	608	0.02	0.02	0.54	616
2025	< 0.005	0.55	0.01	0.04	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	6.15	6.15	< 0.005	< 0.005	0.01	6.24

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	9.29	14.3	11.0	71.9	0.16	0.48	4.50	4.97	0.48	0.80	1.27	114	21,464	21,578	12.4	0.69	53.6	22,149
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	7.52	12.6	11.3	49.5	0.16	0.47	4.50	4.97	0.47	0.80	1.27	114	20,591	20,705	12.4	0.71	2.98	21,232

Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	7.21	12.5	7.42	53.9	0.12	0.20	4.01	4.21	0.19	0.71	0.91	114	15,096	15,210	12.3	0.64	21.7	15,731
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.32	2.28	1.35	9.83	0.02	0.04	0.73	0.77	0.04	0.13	0.17	18.9	2,499	2,518	2.04	0.11	3.59	2,604

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.46	6.87	6.21	56.4	0.13	0.10	4.50	4.60	0.10	0.80	0.89	—	13,786	13,786	0.57	0.62	52.0	14,036
Area	1.71	7.34	3.72	15.1	0.02	0.29	—	0.29	0.30	—	0.30	0.00	4,584	4,584	0.09	0.01	—	4,589
Energy	0.12	0.06	1.03	0.44	0.01	0.08	—	0.08	0.08	—	0.08	—	3,030	3,030	0.28	0.02	—	3,043
Water	—	—	—	—	—	—	—	—	—	—	—	18.7	63.5	82.2	1.92	0.05	—	144
Waste	—	—	—	—	—	—	—	—	—	—	—	95.6	0.00	95.6	9.56	0.00	—	335
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.63	1.63
Total	9.29	14.3	11.0	71.9	0.16	0.48	4.50	4.97	0.48	0.80	1.27	114	21,464	21,578	12.4	0.69	53.6	22,149
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	6.98	6.39	6.65	47.6	0.13	0.10	4.50	4.60	0.10	0.80	0.89	—	12,949	12,949	0.59	0.64	1.35	13,155
Area	0.42	6.12	3.58	1.52	0.02	0.29	—	0.29	0.29	—	0.29	0.00	4,548	4,548	0.09	0.01	—	4,553
Energy	0.12	0.06	1.03	0.44	0.01	0.08	—	0.08	0.08	—	0.08	—	3,030	3,030	0.28	0.02	—	3,043
Water	—	—	—	—	—	—	—	—	—	—	—	18.7	63.5	82.2	1.92	0.05	—	144
Waste	—	—	—	—	—	—	—	—	—	—	—	95.6	0.00	95.6	9.56	0.00	—	335
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.63	1.63

Total	7.52	12.6	11.3	49.5	0.16	0.47	4.50	4.97	0.47	0.80	1.27	114	20,591	20,705	12.4	0.71	2.98	21,232
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	6.18	5.65	6.05	44.0	0.11	0.09	4.01	4.10	0.09	0.71	0.80	—	11,666	11,666	0.53	0.57	20.0	11,870
Area	0.91	6.76	0.34	9.41	< 0.005	0.02	—	0.02	0.02	—	0.02	0.00	336	336	0.01	< 0.005	—	337
Energy	0.12	0.06	1.03	0.44	0.01	0.08	—	0.08	0.08	—	0.08	—	3,030	3,030	0.28	0.02	—	3,043
Water	—	—	—	—	—	—	—	—	—	—	—	18.7	63.5	82.2	1.92	0.05	—	144
Waste	—	—	—	—	—	—	—	—	—	—	—	95.6	0.00	95.6	9.56	0.00	—	335
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.63	1.63
Total	7.21	12.5	7.42	53.9	0.12	0.20	4.01	4.21	0.19	0.71	0.91	114	15,096	15,210	12.3	0.64	21.7	15,731
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.13	1.03	1.10	8.03	0.02	0.02	0.73	0.75	0.02	0.13	0.15	—	1,931	1,931	0.09	0.10	3.32	1,965
Area	0.17	1.23	0.06	1.72	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	55.7	55.7	< 0.005	< 0.005	—	55.8
Energy	0.02	0.01	0.19	0.08	< 0.005	0.02	—	0.02	0.02	—	0.02	—	502	502	0.05	< 0.005	—	504
Water	—	—	—	—	—	—	—	—	—	—	—	3.10	10.5	13.6	0.32	0.01	—	23.9
Waste	—	—	—	—	—	—	—	—	—	—	—	15.8	0.00	15.8	1.58	0.00	—	55.4
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.27	0.27
Total	1.32	2.28	1.35	9.83	0.02	0.04	0.73	0.77	0.04	0.13	0.17	18.9	2,499	2,518	2.04	0.11	3.59	2,604

3. Construction Emissions Details

3.1. Site Preparation (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	5.83	4.90	47.0	38.0	0.05	2.53	—	2.53	2.33	—	2.33	—	5,530	5,530	0.22	0.04	—	5,549
Dust From Material Movement	—	—	—	—	—	—	5.66	5.66	—	2.69	2.69	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.13	1.29	1.04	< 0.005	0.07	—	0.07	0.06	—	0.06	—	152	152	0.01	< 0.005	—	152
Dust From Material Movement	—	—	—	—	—	—	0.16	0.16	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.24	0.19	< 0.005	0.01	—	0.01	0.01	—	0.01	—	25.1	25.1	< 0.005	< 0.005	—	25.2
Dust From Material Movement	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.11	1.20	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	236	236	0.01	0.01	0.03	239
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	16.0	16.0	< 0.005	< 0.005	< 0.005	16.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	6.55	6.55	< 0.005	< 0.005	0.01	6.65
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.44	0.44	< 0.005	< 0.005	< 0.005	0.46
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	1.09	1.09	< 0.005	< 0.005	< 0.005	1.10
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.07	0.07	< 0.005	< 0.005	< 0.005	0.08
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Grading (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	5.00	4.20	40.9	32.7	0.06	1.96	—	1.96	1.80	—	1.80	—	6,715	6,715	0.27	0.05	—	6,738
Dust From Material Movement	—	—	—	—	—	—	2.67	2.67	—	0.98	0.98	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	5.00	4.20	40.9	32.7	0.06	1.96	—	1.96	1.80	—	1.80	—	6,715	6,715	0.27	0.05	—	6,738
Dust From Material Movement	—	—	—	—	—	—	2.67	2.67	—	0.98	0.98	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.41	0.34	3.36	2.69	0.01	0.16	—	0.16	0.15	—	0.15	—	552	552	0.02	< 0.005	—	554
Dust From Material Movement	—	—	—	—	—	—	0.22	0.22	—	0.08	0.08	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.61	0.49	< 0.005	0.03	—	0.03	0.03	—	0.03	—	91.4	91.4	< 0.005	< 0.005	—	91.7
Dust From Material Movement	—	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	0.11	1.81	0.00	0.00	0.02	0.02	0.00	0.00	0.00	—	294	294	0.01	0.01	1.26	298

Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	48.1	48.1	< 0.005	0.01	0.13	50.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.12	1.37	0.00	0.00	0.02	0.02	0.00	0.00	0.00	—	270	270	0.01	0.01	0.03	273
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	48.1	48.1	< 0.005	0.01	< 0.005	50.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.12	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	22.5	22.5	< 0.005	< 0.005	0.04	22.8
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.95	3.95	< 0.005	< 0.005	< 0.005	4.13
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	3.72	3.72	< 0.005	< 0.005	0.01	3.77
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.65	0.65	< 0.005	< 0.005	< 0.005	0.68
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Building Construction (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.62	1.36	12.8	14.3	0.03	0.60	—	0.60	0.55	—	0.55	—	2,630	2,630	0.11	0.02	—	2,639
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.62	1.36	12.8	14.3	0.03	0.60	—	0.60	0.55	—	0.55	—	2,630	2,630	0.11	0.02	—	2,639
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.84	0.70	6.62	7.38	0.01	0.31	—	0.31	0.28	—	0.28	—	1,359	1,359	0.06	0.01	—	1,363
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	1.21	1.35	< 0.005	0.06	—	0.06	0.05	—	0.05	—	225	225	0.01	< 0.005	—	226
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.01	0.92	0.91	15.7	0.00	0.00	0.14	0.14	0.00	0.00	0.00	—	2,539	2,539	0.10	0.09	10.9	2,578
Vendor	0.03	0.02	0.78	0.24	< 0.005	0.01	0.04	0.05	0.01	0.01	0.02	—	672	672	0.01	0.10	1.87	705
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.96	0.87	1.06	11.9	0.00	0.00	0.14	0.14	0.00	0.00	0.00	—	2,332	2,332	0.11	0.09	0.28	2,361
Vendor	0.03	0.02	0.82	0.25	< 0.005	0.01	0.04	0.05	0.01	0.01	0.02	—	673	673	0.01	0.10	0.05	703
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.49	0.45	0.55	6.44	0.00	0.00	0.07	0.07	0.00	0.00	0.00	—	1,220	1,220	0.06	0.04	2.42	1,238
Vendor	0.02	0.01	0.43	0.13	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	348	348	0.01	0.05	0.42	364
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.10	1.17	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	202	202	0.01	0.01	0.40	205
Vendor	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	57.5	57.5	< 0.005	0.01	0.07	60.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Building Construction (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.55	1.30	12.2	14.2	0.03	0.54	—	0.54	0.49	—	0.49	—	2,630	2,630	0.11	0.02	—	2,639
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.55	1.30	12.2	14.2	0.03	0.54	—	0.54	0.49	—	0.49	—	2,630	2,630	0.11	0.02	—	2,639
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.98	0.82	7.72	9.02	0.02	0.34	—	0.34	0.31	—	0.31	—	1,668	1,668	0.07	0.01	—	1,673

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.18	0.15	1.41	1.65	< 0.005	0.06	—	0.06	0.06	—	0.06	—	276	276	0.01	< 0.005	—	277
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.97	0.89	0.83	14.4	0.00	0.00	0.14	0.14	0.00	0.00	0.00	—	2,487	2,487	0.10	0.09	9.87	2,525
Vendor	0.03	0.02	0.75	0.23	< 0.005	0.01	0.04	0.05	0.01	0.01	0.02	—	665	665	0.01	0.10	1.87	697
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.92	0.83	0.98	10.9	0.00	0.00	0.14	0.14	0.00	0.00	0.00	—	2,286	2,286	0.11	0.09	0.26	2,314
Vendor	0.03	0.02	0.79	0.24	< 0.005	0.01	0.04	0.05	0.01	0.01	0.02	—	665	665	0.01	0.10	0.05	695
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.58	0.53	0.62	7.28	0.00	0.00	0.09	0.09	0.00	0.00	0.00	—	1,468	1,468	0.07	0.05	2.70	1,488
Vendor	0.02	0.01	0.50	0.15	< 0.005	0.01	0.02	0.03	0.01	0.01	0.02	—	422	422	0.01	0.06	0.51	441
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.11	1.33	0.00	0.00	0.02	0.02	0.00	0.00	0.00	—	243	243	0.01	0.01	0.45	246
Vendor	< 0.005	< 0.005	0.09	0.03	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	69.8	69.8	< 0.005	0.01	0.08	73.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Paving (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.01	0.85	7.81	10.0	0.01	0.39	—	0.39	0.36	—	0.36	—	1,512	1,512	0.06	0.01	—	1,517
Paving	—	0.56	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.43	0.55	< 0.005	0.02	—	0.02	0.02	—	0.02	—	82.8	82.8	< 0.005	< 0.005	—	83.1
Paving	—	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.7	13.7	< 0.005	< 0.005	—	13.8
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.09	0.95	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	198	198	0.01	0.01	0.02	201
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	31.7	31.7	< 0.005	< 0.005	< 0.005	33.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	11.0	11.0	< 0.005	< 0.005	0.02	11.2
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.74	1.74	< 0.005	< 0.005	< 0.005	1.82
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	1.82	1.82	< 0.005	< 0.005	< 0.005	1.85
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.29	0.29	< 0.005	< 0.005	< 0.005	0.30
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Architectural Coating (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.22	0.18	1.21	1.53	< 0.005	0.04	—	0.04	0.04	—	0.04	—	178	178	0.01	< 0.005	—	179
Architectural Coatings	—	54.8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	< 0.005	0.03	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.88	4.88	< 0.005	< 0.005	—	4.89
Architectural Coatings	—	1.50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.81	0.81	< 0.005	< 0.005	—	0.81
Architectural Coatings	—	0.27	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18	0.17	0.20	2.18	0.00	0.00	0.03	0.03	0.00	0.00	0.00	—	457	457	0.02	0.02	0.05	463
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	47.5	47.5	< 0.005	0.01	< 0.005	49.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	0.01	0.06	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	12.7	12.7	< 0.005	< 0.005	0.02	12.9
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.30	1.30	< 0.005	< 0.005	< 0.005	1.36

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	2.10	2.10	< 0.005	< 0.005	< 0.005	2.13
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.22	0.22	< 0.005	< 0.005	< 0.005	0.23
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.13. Architectural Coating (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.21	0.17	1.18	1.52	< 0.005	0.04	—	0.04	0.03	—	0.03	—	178	178	0.01	< 0.005	—	179
Architectural Coatings	—	54.8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.76	9.76	< 0.005	< 0.005	—	9.79
Architectural Coatings	—	3.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.62	1.62	< 0.005	< 0.005	—	1.62
Architectural Coatings	—	0.55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.16	0.15	0.17	2.02	0.00	0.00	0.03	0.03	0.00	0.00	0.00	—	448	448	0.02	0.02	0.05	453
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	46.8	46.8	< 0.005	0.01	< 0.005	49.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.12	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	24.8	24.8	< 0.005	< 0.005	0.04	25.2
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.57	2.57	< 0.005	< 0.005	< 0.005	2.69
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	4.11	4.11	< 0.005	< 0.005	0.01	4.17
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.42	0.42	< 0.005	< 0.005	< 0.005	0.44
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	7.46	6.87	6.21	56.4	0.13	0.10	0.75	0.85	0.10	0.23	0.33	—	13,786	13,786	0.57	0.62	52.0	14,036
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	7.46	6.87	6.21	56.4	0.13	0.10	0.75	0.85	0.10	0.23	0.33	—	13,786	13,786	0.57	0.62	52.0	14,036
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	6.98	6.39	6.65	47.6	0.13	0.10	0.75	0.85	0.10	0.23	0.33	—	12,949	12,949	0.59	0.64	1.35	13,155
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	6.98	6.39	6.65	47.6	0.13	0.10	0.75	0.85	0.10	0.23	0.33	—	12,949	12,949	0.59	0.64	1.35	13,155
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	1.13	1.03	1.10	8.03	0.02	0.02	0.12	0.14	0.02	0.04	0.05	—	1,931	1,931	0.09	0.10	3.32	1,965
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.13	1.03	1.10	8.03	0.02	0.02	0.12	0.14	0.02	0.04	0.05	—	1,931	1,931	0.09	0.10	3.32	1,965

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	1,570	1,570	0.15	0.02	—	1,579
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	155	155	0.01	< 0.005	—	156
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,724	1,724	0.16	0.02	—	1,734
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	1,570	1,570	0.15	0.02	—	1,579
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	155	155	0.01	< 0.005	—	156
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,724	1,724	0.16	0.02	—	1,734
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	260	260	0.02	< 0.005	—	261
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	25.6	25.6	< 0.005	< 0.005	—	25.8
Total	—	—	—	—	—	—	—	—	—	—	—	—	286	286	0.03	< 0.005	—	287

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	0.12	0.06	1.03	0.44	0.01	0.08	—	0.08	0.08	—	0.08	—	1,305	1,305	0.12	< 0.005	—	1,309
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.12	0.06	1.03	0.44	0.01	0.08	—	0.08	0.08	—	0.08	—	1,305	1,305	0.12	< 0.005	—	1,309
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	0.12	0.06	1.03	0.44	0.01	0.08	—	0.08	0.08	—	0.08	—	1,305	1,305	0.12	< 0.005	—	1,309
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.12	0.06	1.03	0.44	0.01	0.08	—	0.08	0.08	—	0.08	—	1,305	1,305	0.12	< 0.005	—	1,309
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	0.02	0.01	0.19	0.08	< 0.005	0.02	—	0.02	0.02	—	0.02	—	216	216	0.02	< 0.005	—	217
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.02	0.01	0.19	0.08	< 0.005	0.02	—	0.02	0.02	—	0.02	—	216	216	0.02	< 0.005	—	217

4.3. Area Emissions by Source

4.3.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.42	0.21	3.58	1.52	0.02	0.29	—	0.29	0.29	—	0.29	0.00	4,548	4,548	0.09	0.01	—	4,553
Consumer Products	—	5.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	1.29	1.22	0.13	13.6	< 0.005	0.01	—	0.01	0.01	—	0.01	—	36.4	36.4	< 0.005	< 0.005	—	36.5
Total	1.71	7.34	3.72	15.1	0.02	0.29	—	0.29	0.30	—	0.30	0.00	4,584	4,584	0.09	0.01	—	4,589
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.42	0.21	3.58	1.52	0.02	0.29	—	0.29	0.29	—	0.29	0.00	4,548	4,548	0.09	0.01	—	4,553
Consumer Products	—	5.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.42	6.12	3.58	1.52	0.02	0.29	—	0.29	0.29	—	0.29	0.00	4,548	4,548	0.09	0.01	—	4,553
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.01	< 0.005	0.04	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	51.6	51.6	< 0.005	< 0.005	—	51.6

Consumer Products	—	1.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.16	0.15	0.02	1.70	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.13	4.13	< 0.005	< 0.005	—	4.14
Total	0.17	1.23	0.06	1.72	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	55.7	55.7	< 0.005	< 0.005	—	55.8

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	18.7	63.5	82.2	1.92	0.05	—	144
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	18.7	63.5	82.2	1.92	0.05	—	144
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	18.7	63.5	82.2	1.92	0.05	—	144

Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	18.7	63.5	82.2	1.92	0.05	—	144
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	3.10	10.5	13.6	0.32	0.01	—	23.9
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	3.10	10.5	13.6	0.32	0.01	—	23.9

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	95.6	0.00	95.6	9.56	0.00	—	335
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	95.6	0.00	95.6	9.56	0.00	—	335
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	95.6	0.00	95.6	9.56	0.00	—	335

Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	95.6	0.00	95.6	9.56	0.00	—	335
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	15.8	0.00	15.8	1.58	0.00	—	55.4
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	15.8	0.00	15.8	1.58	0.00	—	55.4

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.63	1.63
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.63	1.63
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.63	1.63
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.63	1.63
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Apartme Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.27	0.27
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.27	0.27

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetatio	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	2/15/2023	2/28/2023	5.00	10.0	—
Grading	Grading	3/1/2023	4/11/2023	5.00	30.0	—
Building Construction	Building Construction	4/12/2023	11/19/2024	5.00	420	—
Paving	Paving	11/20/2024	12/17/2024	5.00	20.0	—
Architectural Coating	Architectural Coating	12/18/2024	1/28/2025	5.00	30.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Crawler Tractors	Diesel	Average	4.00	8.00	87.0	0.43
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Crawler Tractors	Diesel	Average	2.00	8.00	87.0	0.43
Building Construction	Cranes	Diesel	Average	1.00	8.00	367	0.29

Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	0.51	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	1.53	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	173	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	21.4	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT

Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	1.02	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	34.6	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	1.53	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	515,160	171,720	0.00	0.00	11,108

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	—	—	35.0	0.00	—
Grading	—	—	120	0.00	—

Paving	0.00	0.00	0.00	0.00	4.25

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	3	74%	74%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Apartments Low Rise	—	0%
Parking Lot	4.25	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2023	0.00	349	0.03	< 0.005
2024	0.00	349	0.03	< 0.005
2025	0.00	349	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Apartments Low Rise	1,618	1,092	926	526,977	16,173	10,918	9,262	5,268,712
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Apartments Low Rise	—
Wood Fireplaces	0
Gas Fireplaces	216
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	24

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
515160	171,720	0.00	0.00	11,108

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Apartments Low Rise	1,643,230	349	0.0330	0.0040	4,072,853
Parking Lot	162,174	349	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Apartments Low Rise	9,761,706	0.00
Parking Lot	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Apartments Low Rise	54.9	0.00
Parking Lot	0.00	0.00

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Apartments Low Rise	Average room A/C & Other residential A/C and heat pumps	User Defined	750	< 0.005	2.50	2.50	10.0
Apartments Low Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	27.8	annual days of extreme heat
Extreme Precipitation	2.60	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	9.89	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack	N/A	N/A	N/A	N/A
Air Quality	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	1	1	3
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack	N/A	N/A	N/A	N/A
Air Quality	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	91.1
AQ-PM	49.2
AQ-DPM	31.8
Drinking Water	10.2
Lead Risk Housing	16.1
Pesticides	27.2
Toxic Releases	23.1
Traffic	72.3
Effect Indicators	—
CleanUp Sites	0.00
Groundwater	22.1
Haz Waste Facilities/Generators	23.7
Impaired Water Bodies	0.00
Solid Waste	52.9
Sensitive Population	—
Asthma	42.3
Cardio-vascular	74.9

Low Birth Weights	9.85
Socioeconomic Factor Indicators	—
Education	58.9
Housing	12.8
Linguistic	7.38
Poverty	50.7
Unemployment	30.9

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	31.83626331
Employed	9.39304504
Median HI	19.47901963
Education	—
Bachelor's or higher	31.46413448
High school enrollment	100
Preschool enrollment	61.41408957
Transportation	—
Auto Access	91.71050943
Active commuting	43.93686642
Social	—
2-parent households	8.456306942
Voting	25.54856923
Neighborhood	—
Alcohol availability	85.78211215

Park access	2.194276915
Retail density	15.48825869
Supermarket access	15.07763377
Tree canopy	1.077890414
Housing	—
Homeownership	92.2751187
Housing habitability	54.38213782
Low-inc homeowner severe housing cost burden	5.658924676
Low-inc renter severe housing cost burden	73.36070833
Uncrowded housing	54.63877839
Health Outcomes	—
Insured adults	13.51212627
Arthritis	4.6
Asthma ER Admissions	63.2
High Blood Pressure	6.0
Cancer (excluding skin)	16.1
Asthma	21.6
Coronary Heart Disease	3.6
Chronic Obstructive Pulmonary Disease	5.0
Diagnosed Diabetes	23.2
Life Expectancy at Birth	14.6
Cognitively Disabled	97.6
Physically Disabled	26.6
Heart Attack ER Admissions	35.8
Mental Health Not Good	30.2
Chronic Kidney Disease	7.4
Obesity	24.6

Pedestrian Injuries	72.5
Physical Health Not Good	21.6
Stroke	8.8
Health Risk Behaviors	—
Binge Drinking	69.8
Current Smoker	21.9
No Leisure Time for Physical Activity	24.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	19.9
Elderly	29.3
English Speaking	74.5
Foreign-born	34.9
Outdoor Workers	34.1
Climate Change Adaptive Capacity	—
Impervious Surface Cover	81.9
Traffic Density	49.5
Traffic Access	23.0
Other Indices	—
Hardship	81.8
Other Decision Support	—
2016 Voting	40.1

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	27.0

Healthy Places Index Score for Project Location (b)	20.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Taken from site plan and project description
Construction: Construction Phases	Building construction schedule increased to account for 2025 Opening year
Construction: Off-Road Equipment	T/L/B replaced with Crawler Tractor to accurately calculate disturbance for Site Preparation and Grading phases Standard 8-hour work days
Construction: Trips and VMT	Vendor Trips adjusted based on CalEEMod defaults for Building Construction and number of days for all phases of construction
Operations: Vehicle Data	Taken from traffic analysis and ITE weekend rates
Operations: Hearths	Rule 445 no wood burning devices, Wood burning devices added to gas devices
Operations: Refrigerants	Beginning 1 January 2025, all new air conditioning equipment may not use refrigerants with a GWP of 750 or greater.

ATTACHMENT B

EMFAC2021

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Sub-Area
Region: Riverside (SC)
Calendar Year: 2023
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	endar Y	hicle Categc	Model Year	Speed	Fuel	Population	Total VMT	el_Consumption (1000 g	Fuel_Consumption (gal)	Total Fuel	VMT	Total VMT	Miles per Gallon	Vehicle Class
Riverside (SC)	2023	HHDT	Aggregate	Aggregate	Gasoline	9.455104489	402.0155083	0.108573531	108.5735307	317785.1606	402.0155083	1920248.354	6.04	HHDT
Riverside (SC)	2023	HHDT	Aggregate	Aggregate	Diesel	14188.53655	1870417.715	309.6254593	309625.4593		1870417.715			
Riverside (SC)	2023	HHDT	Aggregate	Aggregate	Electricity	10.75839329	733.8118529	0	0		733.8118529			
Riverside (SC)	2023	HHDT	Aggregate	Aggregate	Natural Gas	693.7983116	48694.81207	8.051127696	8051.127696		48694.81207			
Riverside (SC)	2023	LDA	Aggregate	Aggregate	Gasoline	469124.6474	20366451.54	699.7310812	699731.0812	711067.1515	20366451.54	21760170.77	30.60	LDA
Riverside (SC)	2023	LDA	Aggregate	Aggregate	Diesel	1558.762895	58561.51523	1.375784729	1375.784729		58561.51523			
Riverside (SC)	2023	LDA	Aggregate	Aggregate	Electricity	16185.78734	744565.1808	0	0		744565.1808			
Riverside (SC)	2023	LDA	Aggregate	Aggregate	Plug-in Hybr	11651.42905	590592.5329	9.960285645	9960.285645		590592.5329			
Riverside (SC)	2023	LDT1	Aggregate	Aggregate	Gasoline	41569.09002	1542689.764	63.99950114	63999.50114	64044.29373	1542689.764	1546785.932	24.15	LDT1
Riverside (SC)	2023	LDT1	Aggregate	Aggregate	Diesel	20.22700504	383.6181372	0.015644241	15.64424123		383.6181372			
Riverside (SC)	2023	LDT1	Aggregate	Aggregate	Electricity	42.93918941	1813.231309	0	0		1813.231309			
Riverside (SC)	2023	LDT1	Aggregate	Aggregate	Plug-in Hybr	33.25263876	1899.318283	0.029148352	29.14835174		1899.318283			
Riverside (SC)	2023	LDT2	Aggregate	Aggregate	Gasoline	191587.7811	8435118.12	356.5641957	356564.1957	358545.5463	8435118.12	8562709.114	23.88	LDT2
Riverside (SC)	2023	LDT2	Aggregate	Aggregate	Diesel	577.8339592	27328.90025	0.849494989	849.4949888		27328.90025			
Riverside (SC)	2023	LDT2	Aggregate	Aggregate	Electricity	816.9774193	29520.94571	0	0		29520.94571			
Riverside (SC)	2023	LDT2	Aggregate	Aggregate	Plug-in Hybr	1285.022226	70741.14871	1.131855657	1131.855657		70741.14871			
Riverside (SC)	2023	LHDT1	Aggregate	Aggregate	Gasoline	18052.34987	656605.5887	49.73832228	49738.32228	77417.67097	656605.5887	1224140.947	15.81	LHDT1
Riverside (SC)	2023	LHDT1	Aggregate	Aggregate	Diesel	15395.69696	567535.3588	27.67934868	27679.34868		567535.3588			
Riverside (SC)	2023	LHDT2	Aggregate	Aggregate	Gasoline	2523.570585	90490.65997	7.611904144	7611.904144	22679.23434	90490.65997	346711.8059	15.29	LHDT2
Riverside (SC)	2023	LHDT2	Aggregate	Aggregate	Diesel	6852.470307	256221.1459	15.0673302	15067.3302		256221.1459			
Riverside (SC)	2023	MCY	Aggregate	Aggregate	Gasoline	24170.7213	141523.0693	3.403298812	3403.298812	3403.298812	141523.0693	141523.0693	41.58	MCY
Riverside (SC)	2023	MDV	Aggregate	Aggregate	Gasoline	159138.1322	6456725.347	338.8355886	338835.5886	344047.395	6456725.347	6637695.092	19.29	MDV
Riverside (SC)	2023	MDV	Aggregate	Aggregate	Diesel	2483.005938	104140.6313	4.4577137	4457.7137		104140.6313			
Riverside (SC)	2023	MDV	Aggregate	Aggregate	Electricity	897.1539487	32338.42861	0	0		32338.42861			
Riverside (SC)	2023	MDV	Aggregate	Aggregate	Plug-in Hybr	887.9224631	44490.68605	0.754092705	754.0927053		44490.68605			
Riverside (SC)	2023	MH	Aggregate	Aggregate	Gasoline	5083.841078	44617.33224	9.135457245	9135.457245	10873.77525	44617.33224	62635.35904	5.76	MH
Riverside (SC)	2023	MH	Aggregate	Aggregate	Diesel	2073.70666	18018.02681	1.738318002	1738.318002		18018.02681			
Riverside (SC)	2023	MHDT	Aggregate	Aggregate	Gasoline	1260.142241	50001.99826	9.730848023	9730.848023	72860.34533	50001.99826	613586.1262	8.42	MHDT
Riverside (SC)	2023	MHDT	Aggregate	Aggregate	Diesel	12683.243	556347.8969	62.32189585	62321.89585		556347.8969			
Riverside (SC)	2023	MHDT	Aggregate	Aggregate	Electricity	4.9202908	108.4971152	0	0		108.4971152			
Riverside (SC)	2023	MHDT	Aggregate	Aggregate	Natural Gas	147.6204682	7127.733974	0.807601459	807.6014589		7127.733974			
Riverside (SC)	2023	OBUS	Aggregate	Aggregate	Gasoline	386.6813181	13386.35665	2.645844907	2645.844907	4805.404855	13386.35665	30497.76136	6.35	OBUS
Riverside (SC)	2023	OBUS	Aggregate	Aggregate	Diesel	215.667787	15076.44179	1.951877039	1951.877039		15076.44179			
Riverside (SC)	2023	OBUS	Aggregate	Aggregate	Natural Gas	33.12387867	2034.962916	0.207682909	207.6829092		2034.962916			
Riverside (SC)	2023	SBUS	Aggregate	Aggregate	Gasoline	421.1646074	16563.24745	1.897862822	1897.862822	5896.748986	16563.24745	37701.28126	6.39	SBUS
Riverside (SC)	2023	SBUS	Aggregate	Aggregate	Diesel	499.0687276	10519.58678	1.437331357	1437.331357		10519.58678			
Riverside (SC)	2023	SBUS	Aggregate	Aggregate	Electricity	0.562315788	6.53322339	0	0		6.53322339			
Riverside (SC)	2023	SBUS	Aggregate	Aggregate	Natural Gas	428.0776414	10611.9138	2.561554808	2561.554808		10611.9138			
Riverside (SC)	2023	UBUS	Aggregate	Aggregate	Gasoline	145.9294435	18476.36382	3.28009086	3280.09086	11107.60554	18476.36382	49531.64193	4.46	UBUS
Riverside (SC)	2023	UBUS	Aggregate	Aggregate	Diesel	0.3117338	30.10971099	0.002674589	2.674588852		30.10971099			
Riverside (SC)	2023	UBUS	Aggregate	Aggregate	Electricity	0.030745281	2.969621933	0	0		2.969621933			
Riverside (SC)	2023	UBUS	Aggregate	Aggregate	Natural Gas	251.677147	31022.19878	7.824840087	7824.840087		31022.19878			

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Sub-Area
Region: Riverside (SC)
Calendar Year: 2024
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	Calen	Vehicle Ca	Model Year	Speed	Fuel	Population	Total VMT	Fuel_Consumption	Fuel_Consumption	Total Fuel	VMT	Total VMT	Miles per Gallon	Vehicle Class
Riverside (SC)	2024	HHDT	Aggregate	Aggregate	Gasoline	7.589475903	347.9694468	0.092180823	92.18082291	321404.9638	347.9694468	1967302.751	6.12	HHDT
Riverside (SC)	2024	HHDT	Aggregate	Aggregate	Diesel	14792.02338	1911347.779	313.0439759	313043.9759		1911347.779			
Riverside (SC)	2024	HHDT	Aggregate	Aggregate	Electricity	47.99547895	5148.201829	0	0		5148.201829			
Riverside (SC)	2024	HHDT	Aggregate	Aggregate	Natural Gas	740.0705237	50458.80082	8.268807048	8268.807048		50458.80082			
Riverside (SC)	2024	LDA	Aggregate	Aggregate	Gasoline	469145.3818	20418129.53	688.4836596	688483.6596	700469.6115	20418129.53	22069128.65	31.51	LDA
Riverside (SC)	2024	LDA	Aggregate	Aggregate	Diesel	1473.049219	54327.45303	1.267188759	1267.188759		54327.45303			
Riverside (SC)	2024	LDA	Aggregate	Aggregate	Electricity	19934.69439	945704.6798	0	0		945704.6798			
Riverside (SC)	2024	LDA	Aggregate	Aggregate	Plug-in Hybr	12893.65575	650966.9876	10.71876311	10718.76311		650966.9876			
Riverside (SC)	2024	LDT1	Aggregate	Aggregate	Gasoline	40643.24621	1523061.246	62.04624692	62046.24692	62104.32538	1523061.246	1529163.988	24.62	LDT1
Riverside (SC)	2024	LDT1	Aggregate	Aggregate	Diesel	18.16927182	339.6979643	0.013831102	13.83110227		339.6979643			
Riverside (SC)	2024	LDT1	Aggregate	Aggregate	Electricity	60.98632141	2789.967089	0	0		2789.967089			
Riverside (SC)	2024	LDT1	Aggregate	Aggregate	Plug-in Hybr	52.35545177	2973.077776	0.044247357	44.24735695		2973.077776			
Riverside (SC)	2024	LDT2	Aggregate	Aggregate	Gasoline	196761.1569	8732860.794	359.674683	359674.683	361927.3798	8732860.794	8893408.735	24.57	LDT2
Riverside (SC)	2024	LDT2	Aggregate	Aggregate	Diesel	611.2140627	29007.74721	0.880423066	880.4230662		29007.74721			
Riverside (SC)	2024	LDT2	Aggregate	Aggregate	Electricity	1212.721837	43455.52608	0	0		43455.52608			
Riverside (SC)	2024	LDT2	Aggregate	Aggregate	Plug-in Hybr	1617.209463	88084.6679	1.372273758	1372.273758		88084.6679			
Riverside (SC)	2024	LHDT1	Aggregate	Aggregate	Gasoline	17828.73734	656766.0119	48.36247552	48362.47552	75554.20605	656766.0119	1221087.42	16.16	LHDT1
Riverside (SC)	2024	LHDT1	Aggregate	Aggregate	Diesel	15247.60565	560367.9206	27.19173053	27191.73053		560367.9206			
Riverside (SC)	2024	LHDT1	Aggregate	Aggregate	Electricity	53.50587181	3953.487241	0	0		3953.487241			
Riverside (SC)	2024	LHDT2	Aggregate	Aggregate	Gasoline	2494.679179	89754.81853	7.38743171	7387.43171	22224.411	89754.81853	344827.7113	15.52	LHDT2
Riverside (SC)	2024	LHDT2	Aggregate	Aggregate	Diesel	6844.928194	254103.3578	14.83697929	14836.97929		254103.3578			
Riverside (SC)	2024	LHDT2	Aggregate	Aggregate	Electricity	13.8489928	969.5349487	0	0		969.5349487			
Riverside (SC)	2024	MCY	Aggregate	Aggregate	Gasoline	24077.0623	140258.0803	3.359217865	3359.217865	3359.217865	140258.0803	140258.0803	41.75	MCY
Riverside (SC)	2024	MDV	Aggregate	Aggregate	Gasoline	158529.7591	6468418.76	332.0736912	332073.6912	337278.1883	6468418.76	6673535.232	19.79	MDV
Riverside (SC)	2024	MDV	Aggregate	Aggregate	Diesel	2456.219583	102039.6434	4.306633032	4306.633032		102039.6434			
Riverside (SC)	2024	MDV	Aggregate	Aggregate	Electricity	1347.135818	48185.7285	0	0		48185.7285			
Riverside (SC)	2024	MDV	Aggregate	Aggregate	Plug-in Hybr	1094.492843	54891.09982	0.897864131	897.864131		54891.09982			
Riverside (SC)	2024	MH	Aggregate	Aggregate	Gasoline	4781.777946	41623.53594	8.518926412	8518.926412	10212.97469	41623.53594	59176.14669	5.79	MH
Riverside (SC)	2024	MH	Aggregate	Aggregate	Diesel	2046.063726	17552.61075	1.694048275	1694.048275		17552.61075			
Riverside (SC)	2024	MHDT	Aggregate	Aggregate	Gasoline	1238.0029	49965.95549	9.588666638	9588.666638	73502.73221	49965.95549	624307.4842	8.49	MHDT
Riverside (SC)	2024	MHDT	Aggregate	Aggregate	Diesel	12954.3675	564761.4751	63.06414519	63064.14519		564761.4751			
Riverside (SC)	2024	MHDT	Aggregate	Aggregate	Electricity	40.46425607	2074.722372	0	0		2074.722372			
Riverside (SC)	2024	MHDT	Aggregate	Aggregate	Natural Gas	158.0466253	7505.331205	0.849920382	849.9203818		7505.331205			
Riverside (SC)	2024	OBUS	Aggregate	Aggregate	Gasoline	374.6153087	12781.812	2.496601383	2496.601383	4662.380277	12781.812	30088.9967	6.45	OBUS
Riverside (SC)	2024	OBUS	Aggregate	Aggregate	Diesel	219.2789175	15140.91273	1.951181612	1951.181612		15140.91273			
Riverside (SC)	2024	OBUS	Aggregate	Aggregate	Electricity	0.821516166	55.60331633	0	0		55.60331633			
Riverside (SC)	2024	OBUS	Aggregate	Aggregate	Natural Gas	34.6553722	2110.668656	0.214597282	214.5972817		2110.668656			
Riverside (SC)	2024	SBUS	Aggregate	Aggregate	Gasoline	423.5817437	16753.46749	1.914821769	1914.821769	5918.221943	16753.46749	37909.3201	6.41	SBUS
Riverside (SC)	2024	SBUS	Aggregate	Aggregate	Diesel	491.8063992	10225.99182	1.394925642	1394.925642		10225.99182			
Riverside (SC)	2024	SBUS	Aggregate	Aggregate	Electricity	2.445505521	61.99924762	0	0		61.99924762			
Riverside (SC)	2024	SBUS	Aggregate	Aggregate	Natural Gas	443.1589434	10867.86154	2.608474532	2608.474532		10867.86154			
Riverside (SC)	2024	UBUS	Aggregate	Aggregate	Gasoline	146.2127201	18511.1132	3.282633075	3282.633075	11054.35384	18511.1132	49631.8201	4.49	UBUS
Riverside (SC)	2024	UBUS	Aggregate	Aggregate	Diesel	0.3117338	30.10971099	0.002675115	2.675115035		30.10971099			
Riverside (SC)	2024	UBUS	Aggregate	Aggregate	Electricity	0.120004951	18.36371585	0	0		18.36371585			
Riverside (SC)	2024	UBUS	Aggregate	Aggregate	Natural Gas	252.109466	31072.23347	7.769045647	7769.045647		31072.23347			

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Sub-Area
Region: Riverside (SC)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	Calen	Vehicle Ca	Model Year	Speed	Fuel	Population	Total VMT	Fuel_Consumption	Fuel_Consumption	Total Fuel	VMT	Total VMT	Miles per Gallon	Vehicle Class
Riverside (SC)	2025	HHDT	Aggregate	Aggregate	Gasoline	6.232252524	303.889871	0.078875502	78.87550173	324061.9332	303.889871	2014903.459	6.22	HHDT
Riverside (SC)	2025	HHDT	Aggregate	Aggregate	Diesel	15281.49903	1950611.476	315.5182536	315518.2536		1950611.476			
Riverside (SC)	2025	HHDT	Aggregate	Aggregate	Electricity	103.9487733	11894.93596	0	0		11894.93596			
Riverside (SC)	2025	HHDT	Aggregate	Aggregate	Natural Gas	781.6601067	52093.15724	8.464804133	8464.804133		52093.15724			
Riverside (SC)	2025	LDA	Aggregate	Aggregate	Gasoline	469318.5342	20373765.83	673.3165394	673316.5394	685799.5767	20373765.83	22281991.59	32.49	LDA
Riverside (SC)	2025	LDA	Aggregate	Aggregate	Diesel	1383.809245	49996.02059	1.157204906	1157.204906		49996.02059			
Riverside (SC)	2025	LDA	Aggregate	Aggregate	Electricity	23756.17576	1153396.904	0	0		1153396.904			
Riverside (SC)	2025	LDA	Aggregate	Aggregate	Plug-in Hybr	14087.23202	704832.8394	11.32583244	11325.83244		704832.8394			
Riverside (SC)	2025	LDT1	Aggregate	Aggregate	Gasoline	39844.42885	1499609.575	59.92078241	59920.78241	59994.79347	1499609.575	1508277.871	25.14	LDT1
Riverside (SC)	2025	LDT1	Aggregate	Aggregate	Diesel	16.26032827	298.1728862	0.012131898	12.13189805		298.1728862			
Riverside (SC)	2025	LDT1	Aggregate	Aggregate	Electricity	84.57619148	4089.475353	0	0		4089.475353			
Riverside (SC)	2025	LDT1	Aggregate	Aggregate	Plug-in Hybr	76.19034646	4280.647946	0.061879155	61.87915548		4280.647946			
Riverside (SC)	2025	LDT2	Aggregate	Aggregate	Gasoline	201900.7772	8973973.952	360.0165635	360016.5635	362521.4419	8973973.952	9168424.554	25.29	LDT2
Riverside (SC)	2025	LDT2	Aggregate	Aggregate	Diesel	648.0824816	30519.42791	0.906087045	906.0870448		30519.42791			
Riverside (SC)	2025	LDT2	Aggregate	Aggregate	Electricity	1658.408696	58637.73041	0	0		58637.73041			
Riverside (SC)	2025	LDT2	Aggregate	Aggregate	Plug-in Hybr	1963.286623	105293.4446	1.598791388	1598.791388		105293.4446			
Riverside (SC)	2025	LHDT1	Aggregate	Aggregate	Gasoline	17598.36242	652458.21	46.82732866	46827.32866	73403.79877	652458.21	1212550.7	16.52	LHDT1
Riverside (SC)	2025	LHDT1	Aggregate	Aggregate	Diesel	15075.59282	549831.8274	26.5764701	26576.4701		549831.8274			
Riverside (SC)	2025	LHDT1	Aggregate	Aggregate	Electricity	149.6982853	10260.66293	0	0		10260.66293			
Riverside (SC)	2025	LHDT2	Aggregate	Aggregate	Gasoline	2462.303572	88408.90183	7.133200743	7133.200743	21661.35468	88408.90183	341190.0394	15.75	LHDT2
Riverside (SC)	2025	LHDT2	Aggregate	Aggregate	Diesel	6820.445818	250292.8301	14.52815394	14528.15394		250292.8301			
Riverside (SC)	2025	LHDT2	Aggregate	Aggregate	Electricity	38.18158868	2488.307475	0	0		2488.307475			
Riverside (SC)	2025	MCY	Aggregate	Aggregate	Gasoline	24005.46384	138549.7935	3.307549619	3307.549619	3307.549619	138549.7935	138549.7935	41.89	MCY
Riverside (SC)	2025	MDV	Aggregate	Aggregate	Gasoline	157992.5704	6448292.677	323.4938203	323493.8203	328676.5122	6448292.677	6678432.543	20.32	MDV
Riverside (SC)	2025	MDV	Aggregate	Aggregate	Diesel	2427.253752	99526.12558	4.137752355	4137.752355		99526.12558			
Riverside (SC)	2025	MDV	Aggregate	Aggregate	Electricity	1830.142844	64565.5975	0	0		64565.5975			
Riverside (SC)	2025	MDV	Aggregate	Aggregate	Plug-in Hybr	1324.504282	66048.14278	1.044939643	1044.939643		66048.14278			
Riverside (SC)	2025	MH	Aggregate	Aggregate	Gasoline	4508.467531	38795.29207	7.939175542	7939.175542	9582.26868	38795.29207	55815.16631	5.82	MH
Riverside (SC)	2025	MH	Aggregate	Aggregate	Diesel	2015.081247	17019.87424	1.643093138	1643.093138		17019.87424			
Riverside (SC)	2025	MHDT	Aggregate	Aggregate	Gasoline	1219.56756	49718.98291	9.418016992	9418.016992	73843.62953	49718.98291	635118.1523	8.60	MHDT
Riverside (SC)	2025	MHDT	Aggregate	Aggregate	Diesel	13275.74248	571359.1019	63.53271272	63532.71272		571359.1019			
Riverside (SC)	2025	MHDT	Aggregate	Aggregate	Electricity	118.7135177	6143.919124	0	0		6143.919124			
Riverside (SC)	2025	MHDT	Aggregate	Aggregate	Natural Gas	169.7860028	7896.148358	0.892899818	892.8998181		7896.148358			
Riverside (SC)	2025	OBUS	Aggregate	Aggregate	Gasoline	362.5102847	12151.28279	2.347950658	2347.950658	4510.758842	12151.28279	29688.04546	6.58	OBUS
Riverside (SC)	2025	OBUS	Aggregate	Aggregate	Diesel	224.9321911	15183.67961	1.940769719	1940.769719		15183.67961			
Riverside (SC)	2025	OBUS	Aggregate	Aggregate	Electricity	2.021694394	134.2617193	0	0		134.2617193			
Riverside (SC)	2025	OBUS	Aggregate	Aggregate	Natural Gas	36.9521167	2218.821339	0.222038465	222.0384652		2218.821339			
Riverside (SC)	2025	SBUS	Aggregate	Aggregate	Gasoline	426.2067312	16859.59503	1.92304347	1923.04347	5926.536182	16859.59503	38036.5897	6.42	SBUS
Riverside (SC)	2025	SBUS	Aggregate	Aggregate	Diesel	483.8964136	9931.139032	1.352394432	1352.394432		9931.139032			
Riverside (SC)	2025	SBUS	Aggregate	Aggregate	Electricity	5.22909553	143.1587763	0	0		143.1587763			
Riverside (SC)	2025	SBUS	Aggregate	Aggregate	Natural Gas	457.8096259	11102.69686	2.65109828	2651.09828		11102.69686			
Riverside (SC)	2025	UBUS	Aggregate	Aggregate	Gasoline	146.4959788	18545.85863	3.288543187	3288.543187	10964.44655	18545.85863	49731.99827	4.54	UBUS
Riverside (SC)	2025	UBUS	Aggregate	Aggregate	Diesel	0.3117338	30.10971099	0.002675115	2.675115035		30.10971099			
Riverside (SC)	2025	UBUS	Aggregate	Aggregate	Electricity	0.20926462	33.75780976	0	0		33.75780976			
Riverside (SC)	2025	UBUS	Aggregate	Aggregate	Natural Gas	252.5418031	31122.27213	7.673228246	7673.228246		31122.27213			

PHASE I AND LIMITED PHASE II ENVIRONMENTAL SITE ASSESSMENT ON THREE PARCELS LOCATED AT E. HERITAGE LAKE DRIVE AND MENIFEE ROAD, MENIFEE, CA

(Parcel Nos. 333-070-018, 019, and 053)

Prepared For:

Zach Shulruff
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August 2022

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1.0 INTRODUCTION

This Phase I and Limited Phase II Environmental Site Assessment (ESA) is prepared for the review of three parcels (APN Nos. 333-070-018, 019, and 053) consisting of approximately 17.67 acres, located at East Heritage Lake Drive and Menifee Road in the City of Menifee, California. The ESA examines the existing environmental conditions upon, and in the vicinity of the subject site, and identifies any historical or current land use that may pose a Recognized Environmental Condition (REC)[1] affecting the use or continued use of the subject property. Refer to Figures 1 and 2 for a Regional Location Map and Vicinity Map/Aerial Photograph of the subject property.

The purpose of this Limited Phase I/II ESA is to assess historical uses that may have affected the subject site specifically relating to the presence or likely presence of a REC such as hazardous materials or petroleum products. This report includes any observed potential impacts to the site that may have altered the site's ecology, environment, or functional use. Visual observations and inquiry into public records are documented; no documents related to the placement of water pipelines, gas mains or other infrastructure were reviewed. This Limited Phase I/II ESA includes limited soil testing for the presence of pesticides and biosolids at the request of the client. No other testing of soil, air, water or any other matter was conducted as part of this Phase I ESA.

American Society for Testing and Materials (ASTM) Guidelines*:* This environmental assessment follows the guidelines established by the ASTM Standard Practice Manual for the *Phase I Environmental Site Assessment* process, *ASTM Designation E 1527-05*.

The objective of this ESA is to evaluate the subject site for current and historical sources of environmental concerns, evidence of hazardous substance disposal or releases from or onto the subject site, evidence of environmental threats from adjacent properties, and whether further environmental testing of the site is warranted. This report meets *ASTM Standards for ESA's*. To meet these objectives, Lilburn Corporation performed the following tasks:

- Reviewed available environmental reports.
- Reviewed historic land use records and files.
- Reviewed pertinent regulatory agency documents.
- Reviewed available current and historical aerial photographs of the site and adjacent properties.
- Performed a reconnaissance of adjacent and immediately surrounding properties.
- Performed an on-site reconnaissance of the property and collected limited soil samples.
- Obtained laboratory analysis of soil samples.
- Prepared this report.

Results of this Environmental Site Assessment for the site located in the City of Menifee, County of Riverside, California are presented in the following Sections 2.0 – 7.0.

[1] American Society for Testing and Materials defines a Recognized Environmental Condition as "the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws.



0 0.8
Mile

Source: Lilburn Corp., August, 2022.

LILBURN CORPORATION

REGIONAL VICINITY

Menifee Phase I/II

City of Menifee, California

FIGURE 1



0 300

Feet

Source: Lilburn Corp., August, 2022.

LILBURN CORPORATION

PROJECT LOCATION

Menifee Phase I/II

City of Menifee, California

FIGURE 2

2.0 SITE LOCATION

The subject site herein referred to as “site, subject site” or "property" is being evaluated at the request of 29th Street Capital. The property consists of three parcels totaling approximately 17.67 acres, located at the southwest corner of E. Heritage Lake Drive and Menifee Road in the City of Menifee, California. In 2014, a report was completed for the subject property and entitled *Phase I and Limited Phase II Environmental Site Assessment on Three Parcels Located Northeast of the Intersection of Junipero Road and McCall Boulevard, Menifee, CA.* That report concluded that based on the field reconnaissance of the site, a Phase I and limited Phase II site assessment was sufficient to evaluate the property in question and additional site investigations were not recommended. This 2022 report has been prepared to evaluate existing and historic site conditions.

The geographical location of the site is as follows:

COORDINATES

Latitude (North):	33.7240790 - 33° 43’ 26.68’’
Longitude (West):	117.1562410 - 117° 9’ 22.46’’
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	485524.7
UTM Y (Meters):	3731380.5
Elevation:	Approximately 1461 ft. above sea level
Assessor’s Parcel Numbers:	0333-070-018, 019, and 053

The subject site boundaries are within the U.S. Geological Survey (USGS) Topographic Map: Romoland 7.5-minute series, Section 23, T5S, R3W, San Bernardino Base and Meridian.

2.1 DESCRIPTION OF SURROUNDING AREA

The property is predominately surrounded by development. Land uses include Menifee Road, Junipero Road, E. Heritage Lake Drive, residential, institutional (elementary school), and vacant properties. East Heritage Lake Drive and single-family residential uses are located to the north, Menifee Road and single-family residential uses are on the east, Junipero Road and Boulder Ridge Elementary School are to the west, and the property to the south is currently being developed (end use could not be determined). The subject site contains no buildings or structures, but appears to be an active construction office for the development of the property to the south.

2.2 REVIEW OF HISTORIC PHOTOGRAPHS

Various governmental agencies including the USGS and local flood control agencies have systematically photographed land uses since the early 1920s. These historical photographs are utilized to assist in identifying historical uses of the subject and adjacent properties. Aerial photographs available that show the subject site and surrounding land uses were analyzed for the following years and corresponding scales:

1938: 1"=500'	*1953: 1"=500'*	*1967: 1"=500'*	*1978: 1"=500'*
1985: 1"=500'	*1997: 1"=500'*	*2006: 1"=500'*	*2012: 1"=500'*
2016: 1"=500'			

Appendix A contains the aerial photographs analyzed. The subject site was marked on each photograph to show an approximate location. The following is a summary of the photograph observations of land uses on-site and in the vicinity for the corresponding years when the photographs were taken.

- The 1938 aerial photograph shows the subject site being located in an undeveloped area with agricultural uses on and surrounding the subject property. A single-family structure and trees/landscaping is evident approximately ¼-mile north of the subject site.

- The 1953 aerial photograph shows that the subject property and surrounding area continues to be used for agriculture. Structures are evident approximately ¼-mile south of the subject site. There appears to be little development that has occurred within the immediate area of the site when compared to the 1938 aerial photograph.

- The 1967 aerial photograph shows a new east-west roadway located approximately ¼-mile south of the subject property (today known as McCall Boulevard), with additional structures appearing south of the new roadway. There is no discernable change to the subject site in the 1967 aerial photograph when compared to the 1953 aerial photograph. Property surrounding the subject site and the subject site itself remain vacant.

- The 1978 aerial photograph shows additional development occurring ¼- to ½-mile south of the subject property. No other significant changes from the 1967 aerial photograph are evident. Menifee Road appears to have been developed. No structures are located on the subject site or on the immediate surrounding properties.

- The 1985 aerial photograph shows little change from the 1978 aerial photograph. The subject property and surrounding area continue to be used for agriculture.

- The 1997 aerial photograph shows little change from the 1985 aerial photograph with some development occurring approximately ½-mile north of the subject property. The subject property and surrounding area continue to be used for agriculture.

- The 2006 aerial photograph shows construction occurring on the property directly to the west of the subject site (Boulder Ridge Middle School). Property directly south of the westernmost parcels appears to be being utilized as a stockpile for the middle school construction material/equipment. Property located east of the subject property across Menifee Road appears to have been graded, and single-family homes appear to have been developed approximately ¼-mile southeast of the subject site. The subject site appears to be unchanged from the 1997 aerial and remains vacant with only routing disking.

- The 2012 aerial photograph shows completion of a single-family home development to the east of the subject site. No other significant changes from the 2006 aerial photograph are evident. The subject site appears to be fallow.

- The 2016 aerial photograph shows no significant changes from the 2012 aerial photograph. The subject site appears unchanged.

None of the historical aerial photographs reviewed show any development on the subject property or development of railroad tracks or bridges on or adjacent to the subject property that would create a REC.

2.3 HISTORIC UNITED STATES GEOLOGICAL SURVEY (USGS) MAPS

Available historic and current USGS maps that include the subject site and surrounding area were reviewed for the following years:

1901: Elsinore Quadrangle; 30 Minute Series
1947: Murrieta Quadrangle; 15 Minute Series
1953: Romoland Quadrangle; 7.5 Minute Series
1973: Romoland Quadrangle 7.5 Minute Series
1979: Romoland Quadrangle; 7.5 Minute Series
2015: Romoland Quadrangle; 7.5 Minute Series
2018: Romoland Quadrangle; 7.5 Minute Series

The USGS has produced several national series of topographic maps which vary in scale and extent in the area going back to the early 1900's. The largest (both in terms of scale and quantity) and best-known topographic series is the 7.5-minute, 1:24,000 scale, and quadrangle. Each of these maps covers an area bounded by two lines of latitude and two lines of longitude spaced 7.5 minutes apart. These maps are utilized to assist in identifying historical uses of the subject and adjacent properties and identify power lines and other physical infrastructure that could affect the subject property or the surrounding area. Appendix B contains the topographic maps reviewed, and the approximate location of the subject site is identified on each map. The subject site is currently located on the Romoland USGS Quadrangle. A summary of the review of the maps are discussed herein.

- The 1901 Elsinore Quadrangle USGS map of the area show no specific streets or development in the immediate vicinity of the subject property however the map scale lacks detail relating to structures on or in the vicinity of the site. The map shows a rail line located approximately ½-mile north of the subject property.
- The 1947 USGS map of the area shows development of a street (Menifee Road) adjacent to the easternmost parcel of the subject property. No structures or development is evident within the immediate area of the project site.
- The 1953 USGS map of the area shows no structures or development within the immediate area of the project site.
- The 1973 USGS map of the area shows the development of roads and structures approximately ¼-mile south of the subject property. No structures or development is evident within the immediate area of the project site.
- The 1979 USGS map of the area shows relatively little change when compared to the 1973 USGS map. The subject property appears unchanged.
- The 2015 USGS map of the area shows the development of roads east of Menifee Road and south of McCall Boulevard. Development of Boulder Ridge Elementary School is shown. No structures or development is evident within the immediate area of the project site.

- The 2018 USGS map of the area shows relatively little change when compared to the 2015 USGS map. However, it shows a road bisecting the property. The subject site remains vacant and undeveloped.

None of the historic USGS maps reviewed show any development of railroad tracks, utility easements, or bridges on the subject property.

3.0 SITE VISIT

Summary: A site inspection was conducted on July 28, 2022. The subject property was active with construction equipment, portable construction offices, numerous shipping containers (aka, PODS), as well as stockpiles of various materials (earth, fines from grading, gravel, etc.). It appears these uses are supporting the development of the adjacent property to the south. No building foundations or remnants were observed on the subject property. No evidence of underground storage tanks, stained soils, electrical transformers, or seepage pits were present. High voltage power lines were observed along the eastern edge of the property adjacent to Menifee Road. Refer to Appendix C for photographs depicting the site and surrounding properties.

3.1 PROPERTY EVALUATION

On-Site Observations

Mr. Frank Amendola and Giang Ngo of Lilburn Corporation conducted a site survey/property evaluation on July 28, 2022. Table 1 presents a summary of the site survey/property evaluation.

Table 1
Summary of Site Reconnaissance

Observed on-site?	Yes	No
Existing structures		●
Power line towers	●	
Evidence of past uses (foundations, debris, roads)		●
Hazardous substances and/or petroleum products (including containers)		●
Aboveground storage tanks (ASTs) or evidence of ASTs		●
Underground storage tanks (USTs) or evidence of USTs		●
Strong, pungent, or noxious odors		●
Pools of liquid likely to be hazardous materials or petroleum products		●
55-gallon drums		●
Unidentified substance containers		●
PCB-containing equipment		●
Subsurface hydraulic equipment		●
Stains or corrosion on floors, walls, or ceilings		●
Floor drains and sumps		●
Pits, ponds, or lagoons		●
Stained soil and/or pavement		●
Stressed vegetation		●
Waste or wastewater discharges to surface or surface waters on subject site (including stormwater)		●
Wells (irrigation, domestic, dry, injection, abandoned, monitoring)		●
Septic systems		●

Access to property was from Menifee Road and was unrestricted. However, the property was fenced along Junipero Road and E. Heritage Lake Drive. Portions of the property to the west

were being used as a construction staging area for the development of the adjacent property to the south. Numerous shipping containers were evident as well as stockpiles of earth and fines from grading. The eastern portion of the property was vacant and clear of construction uses. Refer to Appendix C for photographs of various views of the subject site and surrounding properties.

No permanent structures or remnants of foundations were observed during the site visit. No discoloration of soils was evident and no remnants of underground storage tanks were observed during the visual site inspection. Although high voltage power lines are present on the eastern portion of the subject property along Menifee Road, there were no electrical transformers observed. Signage adjacent to Menifee Road near the site indicates the presence of underground high pressure gas lines.

Surrounding Land Uses

A summary description of surrounding land uses follows:

West Land Uses
Land uses to the west of the subject property consist of Junipero Road and Boulder Ridge Elementary School.

South Land Uses
Land uses to the south of the subject property include undeveloped property. However, it was being developed at the time of the site visit. A construction fence was evident.

North Land Uses
Land uses north of the subject property consist of E. Heritage Lake Drive and single-family homes.

East Land Uses
Land uses east of the subject property consist of Menifee Road and single-family homes.

3.2 PROPERTY OWNER/AGENT INTTERVIEWS

No interviews with the current landowner as no one was available that was familiar with prior uses.

4.0 LIMITED SOIL SAMPLING AND ANALYSIS

Summary: Laboratory results of four soil samples collected did not indicate any issues of concern related to any residual pesticides or biosolids. Appendix D includes the Limited Subsurface Investigative Report and Laboratory testing results, which are summarized below.

4.1 PESTICIDE AND BIOSOLID SOIL SAMPLE LOCATIONS AND PROCEDURES

Samples were collected from depths of 6 inches below grade (18 samples), with the aid of a hand auger. Prior to sampling and between samples, reusable drilling and sampling equipment was cleaned using an Alconox wash and two potable water rinses prior to the beginning of the project and before collecting each soil sample to ensure that cross-contamination of samples did not occur. The sample packaging consisted of placing the soil directly into laboratory provided containers. The field crew used new nitrile gloves for each sample collection to prevent cross contamination. The samples were labeled, sealed, recorded on chain-of-custody forms and stored in a chilled ice chest pending delivery to the laboratory.

4.2 LABORATORY ANALYSIS

The laboratory composited the discrete samples at a 3:1 ratio for laboratory analysis. The soil samples and completed chain-of-custody forms were relinquished to SunStar Laboratories Inc., in Lake Forest, California, a State-of-California certified laboratory for analysis.

4.3 ANALYTICAL RESULTS

All analytical results for organochlorine pesticides in the four samples were non-detect, indicating the soil is not impacted by organochlorine pesticides.

The findings were as follows:

- No indications of staining or significant impacts based on field observations.
- Soil analysis for OCPs and arsenic were below the specified laboratory report limits and applicable screening limits.
- IDW was not generated for this investigation.
- Groundwater was not encountered to the total depth of 0.5 feet bgs.

Based on the field observations and laboratory data, evidence of significant impairment was not identified in the areas accessible and investigated, and at the time the investigation was conducted. Concentrations of detected analytes were below applicable residential and commercial screening levels.

Based on the soil testing conducted, there is no indication of a REC due to potential biosolid application to the subject property. Refer to Appendix D for the comprehensive soil analysis results, prepared by Terracon.

5.0 GEOLOGY AND HYDROGEOLOGY

Summary: No geologic or hydrogeologic concerns were encountered during the site visit, which would be considered "an impairment" to the use of the subject site or a REC. According to the Environmental Data Resources, Inc. (EDR) report the project site is not within the 100-year or 500-year flood plain. Refer to Appendix E for the EDR Report.

5.1 GEOLOGY

Topography

The topography of the subject site is relatively flat and varies little from north to south. The subject site is at an elevation of approximately 1461 feet above mean sea level (amsl). The subject property generally falls from south to north and should not create concerns regarding landslides, erosion, or ground failure. Therefore, development of the site is not anticipated to be impaired.

Seismic Fault Systems

According to the Southern California Earthquake Data Center (www.data.scec.org), several fault systems are located within relatively close proximity to the subject site. The subject site lies on the western edge of the San Jacinto Fault Zone that is capable of producing a maximum credible earthquake magnitude (M_w) of 6.5-7.5. The most recent surface rupture was on April 9, 1968.

Earthquakes, due to their ground acceleration and shifting, can cause major damage to buildings and create dangerous hazards to people through injury or death. Development projects in the seismically-active southern California region must mitigate these potential hazards through strict adherence to the California Building Code (CBC) and implementing recommendations from geotechnical engineers.

5.2 REGIONAL HYDROLOGY AND GROUNDWATER

FEMA Flood Zone Mapping

According to the Environmental Data Resources, Inc. (EDR) report included as Appendix E, the project site is located within Flood Plain Panel 06065C and is not within the 100-year or 500-year flood plain.

Groundwater/Well Data

The EDR report identifies 16 wells located with a 1-mile radius of the subject property, none of which are located within a 1/8-mile radius. All of the wells within the 1-mile radius are either cross-gradient or down-gradient from the subject property.

6.0 LOCAL AGENCY REVIEW

Summary: The County of Riverside Department of Environmental Health-Hazardous Materials Division was contacted as part of the EDR records search. As of August 8, 2022, the records request is pending. Other records reviewed include County of Riverside Building Department, Sanborn Fire Insurance maps, City of Menifee-Planning Division, and local RADON reporting data.

Various local (County) agencies maintain databases or records which are useful for evaluating the history of a property, and which may provide indications pertaining to the past uses of the property and any potential environmental concerns. For the purposes of this ESA, records reviewed are presented below.

- County of Riverside Environmental Health Division, Hazardous Material Department
- County of Riverside Building Department
- City of Menifee Planning Division
- Sanborn Fire Insurance Mapping

County of Riverside Building Department

A review of the County of Riverside Building Department records for building permits issued on the subject property were as follows: On November 2, 2004, a grading permit was issued on the Subject Site for a grading stockpile. The permit description included the following language: Import Stockpile For TR31457. The permit is no longer active.

County of Riverside Environmental Health Department, Hazardous Material Division

The County of Riverside Department of Environmental Health, Hazardous Materials Division was contacted for a hazard's records search. As of August 8, 2022, the records request finding continues to be pending.

City of Menifee Planning Division

The City of Menifee Planning Division was contacted. No planning records were found on the subject site.

Sanborn Fire Insurance Mapping

The Sanborn Maps were originally created for assessing fire insurance liability in urbanized areas in the United States. No Sanborn maps covering the subject property were available for review.

Area Radon Information

No testing for radon was performed as part of this ESA, however a review of available information for the subject area (zip code 92585), revealed that six (6) tests for radon gas within structures have been performed in the area and none of the tests performed indicated radon levels within the structures in excess of 4 pCi/L[2] (Picocuries Per Liter).

[2] 4 pCi/L is the EPA lower action limit for habitable structures. Levels in excess of 4 pCi/L typically require remediation.

7.0 REGULATORY REVIEW

Summary: A review of Federal and State environmental databases revealed no environmental concerns or issues directly related to the site, which would be considered "an impairment" or REC. However, the review of the EDR records search revealed several sites of potential concern within the vicinity. These sites appear to be in compliance with applicable hazardous waste regulations as they are either a permitted operation, actively in remedial work, or remedial work has been completed. These sites are not anticipated to impact the subject property as they are located either a greater distance than would warrant establishment of a REC or are cross-gradient or down-gradient of the subject site and applicable water flow. Refer to Appendix E for additional information.

The State of California and various federal government agencies investigate and/or track numerous environmental concerns on a regional basis. For the purposes of this ESA, the following agency records were reviewed for a one-mile radius of the subject property.

FEDERAL RECORDS

NPL: National Priority List
Source: EPA
Telephone: N/A
National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Proposed NPL: Proposed National Priority List Sites
Source: EPA
Telephone: N/A
This database includes site proposed for listing in the NPL database.

DELISTED NPL: National Priority List Deletions
Source: EPA
Telephone: N/A
The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establish the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

NPL LIENS: Federal Superfund Liens
Source: EPA
Telephone: 205-564-4267
Federal Superfund Liens. Under the authority granted the USEPA by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or

when the property owner receives notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System
Source: EPA
Telephone: 703-412-9810
CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by States, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS includes sites that are either proposed for or on the National Priorities List (NPL), and sites that are in the screening and assessment phase for possible inclusion on the NPL.

CERCLIS - NFRAP: No Further Remedial Action Planned
Source: EPA
Telephone: 703-412-9810
As of February 1995, CERCLIS sites designated "No Further Remedial Action Planned" (NFRAP) have been removed from CERCLIS. NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the need for the site to be placed on the NPL, or the contamination was not serious enough to require Federal Superfund action or NPL consideration. EPA has removed approximately 25,000 NFRAP sites to lift the unintended barriers to the redevelopment of these properties and has archived them as historical records so EPA does not needlessly repeat the investigations in the future. This policy change is part of the EPA's Brownfields Redevelopment Program to help cities, States, private investors and affected citizens to promote economic redevelopment of unproductive urban sites.

LIENS 2: CERCLA Lien Information
Source: EPA
Telephone: 202-564-6023
Database provides information as the identity of sites and properties that have used Superfund funds.

CORRACTS: Corrective Action Report
Source: EPA
Telephone: 800-424-9346
CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

RCRA: Resource Conservation and Recovery Act Information
Source: EPA
Telephone: 415-495-8895
RCRA Info is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS). The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as

defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month. Large quantity generators (LQGs) generate over 1,000 kg of hazardous waste, or over 1kg of actual hazardous waste per month. Transporters are individuals or entities that move hazardous waste from the generator off-site that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

US ENG CONTROLS: Engineering Controls Sites List
Source: Environmental Protection Agency
Telephone: 703-603-8905
A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

US INST CONTROL: Sites with Institutional Controls
Source: Environmental Protection Agency
Telephone: 703-603-8905
A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

ERNS: Emergency Response Notification System
Source: EPA/NTIS
Telephone: 202-267-2180
Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

HMIRS: Hazardous Materials Information Reporting System
Source: U.S. Department of Transportation
Telephone: 202-366-4555
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

DOT OPS: Incident and Accident Data
Source: Department of Transportation, Office of Pipeline Safety
Telephone: 202-366-4595
Pipeline safety and incident report database.

CDL: Clandestine Drug Labs
Source: Department of Toxic Substances Control
Telephone: 916-255-6504
A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

US BROWNFIELDS: A Listing of Brownfields Sites
Source: Environmental Protection Agency
Telephone: 202-566-2777
Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assessment Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients-States, political subdivisions, territories, and Indian tribes become Brownfields Cleanup Revolving Loan Fund (BCRLF) cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

DOD: Department of Defense Sites
Source: USGS
Telephone: 703-692-8801
This data sets consists of federally owned or administered lands, administered by the Department of Defense, that have any equal to or greater than 640 acre of the United States, Puerto Rico, and the U.S. Virgin islands.

FUDS: Formerly Used Defense Sites
Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

LUCIS: Land Use Control Information System
Source: Department of the Navy
Telephone: 843-820-7326
Database contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

CONSENT: Superfund (CERCLA) Consent Decrees
Source: EPA Regional Offices
Telephone: Varies
Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters. Date of Government Version.

ROD: Records of Decision
Source: NTIS
Telephone: 703-416-0223
Record of Decision. ROD documents mandate a permanent remedy at a NPL (Superfund) site containing technical and health information to aid in the cleanup.

UMTRA: Uranium Mill Tailings sites
Source: Department of Energy
Telephone: 505-845-0011
Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized. In 1978, 24 inactive uranium mill tailings sites in Oregon, Idaho, Wyoming, Utah, Colorado, New Mexico, Texas, North Dakota, South Dakota, Pennsylvania, and on Navajo and Hopi tribal lands, were targeted for cleanup by the Department of Energy.

ODI: Open Dump Inventory
Source: Environmental Protection Agency
Telephone: 800-424-9346
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
Source: EPA
Telephone: 415-972-3336
A listing of illegal dump sites located on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

MINES: Mines Master Index File
Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959

TRIS: Toxic Chemical Release Inventory System
Source: EPA
Telephone: 202-566-0250
Toxic Release Inventory System. TRIS identifies facilities that release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

TSCA: Toxic Substances Control Act
Source: EPA
Telephone: 202-260-5521
Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

FTTS: FIFRA/TSCA Tracking System – FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act)/TSCA(Toxic Substance Control Act)
Source: EPA
Telephone: 202-566-1667
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

FTTS INSP: FIFRA/TSCA Tracking System – FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act)/TSCA(Toxic Substance Control Act)
Source: EPA
Telephone: 202-564-1667

HIST FTTS: FIFRA/TSCA Tracking System Administration Case Listing
Source: EPA
Telephone: 202-564-2501
Database tracks establishments that generate pesticide use within the course of the calendar year.

SSTS: Section & Tracking System
Source: EPA
Telephone: 202-564-4203
Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

ICIS: Integrated Compliance Information System
Source: EPA
Telephone: 202-564-5088
The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

PADS: PCB Activity Database System
Source: EPA
Telephone: 202-566-0500
PCB Activity Database. PADS Identifies generators, transporters, commercial stores and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

MLTS: Material Licensing Tracking System
Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements.

RADINFO: Radiation Information Database
Source: EPA
Telephone; 202-343-9775
Contains information about facilities that are regulated by U.S. EPA regulations for radiation and radioactivility.

FINDS: Facility Index System/Facility Identification Initiative Program Summary Report
Source: EPA
Telephone: 415-947-8000
Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

RAATS: RCRA Administrative Action Tracking System
Source: EPA
Telephone: 202-564-4104
RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA retains a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

BRS: Biennial Reporting System
Source: EPA/NTIS
Telephone: 800-424-9346
The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

STATE AND LOCAL RECORDS:

HIST CAL-SITES: Calsites Database
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

SCH: School Property Evaluation Program
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the Cal Sites category depending on the level of threat to public health and safety or the environment they pose.

TOXIC PITS: Toxic Pits Cleanup Act Sites
Source: State Water Resources Control Board
Telephone: 916-227-4364
Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

SWF/LF (SWIS): Solid Waste Information System
Source: Integrated Waste Management Board
Telephone: 916-341-6320
Active, Closed and Inactive Landfills. SWF/LF records typically contain an inventory of solid waste disposal facilities or landfills. These may be active or inactive facilities or open dumps that failed to meet RCRA Section 2004 criteria for solid waste landfills or disposal sites.

WMUDS/SWAT: Waste Management Unit Database
Source: State Water Resources Control Board
Telephone: 916-227-4448
Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

CA WDS: Waste Discharge system
Source: State Water Resources Control Board
Telephone: 916-341-5227
Sites that have been issued waste discharge requirements.

CORTESE: "Cortese" Hazardous Waste & Substance Sites List
Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
The sites for the list are designated by the State Water Resources Control Board (LUST), the Integrated Waste Management Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

SWRCY: Recycler Database
Source: Department of Conservation
Telephone: 916-323-3836
A listing of recycling facilities in California.

LUST: Geotracker's Leaking Underground Fuel Tank Report
Source: State Water Resources Control Board
Telephone: Per Region
Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

CA FID UST: Facility Inventory Database
Source: California Environmental Protection Agency
Telephone: 916-341-5851
The facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resources Control Board.

SLIC: Statewide SLIC Cases
Source: State Water Resources Control Board
Telephone: 886-480-1028
The Spills, Leaks, Investigations, and Cleanups (SLIC) listings includes unauthorized discharges from spills and leaks, other than from underground storage tanks or other regulated sites.

UST: Active UST Facilities
Source: State Water Resources Control Board
Telephone: 916-480-1028
Active UST facilities gathered from the local regulatory agencies.

UST MENDOCINO: Mendocino County UST Database
Source: Department of Public Health
Telephone: 707-463-4466
A list of underground storage tanks in Mendocino County.

HIST UST: Hazardous Materials Storage Container Database
Source: State Water Resources Control Board
Telephone: 916-341-5851
The Hazardous Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

AST: Aboveground Petroleum Storage Tank Facilities
Source: State Water Resources Control Board
Telephone: 916-341-5712
Registered Aboveground Storage Tanks.

LIENS: Environmental Liens Listing
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
A listing of property locations with environmental liens for California where DTSC is a lien holder.

SWEEPS UST: SWEEPS UST Listing
Source: State Water Resources Control Board
Telephone: N/A
Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1980s? The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

CHMIRS: California Hazardous Material Incident Report System
Source: Office of Emergency Services
Telephone: 916-845-8400
California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

NOTIFY 65: Proposition 65 Records
Source: State Water Resources Control Board
Telephone: 916-445-3846
Proposition 65 Notification Records. NOTIFY 65 contains facility notifications about any release which could impact drinking water and thereby expose the public to a potential health risk.

DEED: List of Deed Restrictions
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
The use of recorded land use restrictions is one of the methods the DTSC uses to protect the public from unsafe exposures to hazardous substances and wastes.

VCP: Voluntary Cleanup Program Properties
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

DRY CLEANERS: Cleaner Facilities
Source: Department of Toxic Substances Control
Telephone: 916-327-4498
A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial, garment pressing and cleaner's agents, linen supply, coin-operated laundries and cleaning, drycleaning plants, except rugs, carpet and upholstery cleaning, industrial launders, laundry and garment services.

WIP: Well Investigation Program Case List
Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Well investigation program case in the San Gabriel and San Fernando Valley area.

CDL: Clandestine Drug Labs
Source: Drug Enforcement Administration
Telephone: 202-307-1000
Database provides a listing of clandestine drug lab locations.

RESPONSE: State Response Sites
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

HAZNET: Hazardous Waste Information System
Source: California Environmental Protection Agency
Telephone: 916-255-1136
Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the Department of Toxic Substances Control (DTSC). The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method.

EMI: Emissions Inventory Data
Source: California Air Resources Board
Telephone: 916-322-2990
Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

HAULERS: Registered Waste Tire Haulers Listing
Source: Integrated Waste Management Board
Telephone: 916-341-6422
A listing of registered waste tire haulers.

ENVIROSTOR: EnviroStor Database
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides

additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

TRIBAL REORDS

INDIAN RESERV: Indian Reservations
Source: USGS
Telephone: 202-208-3710
This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

INDIAN LUST: Leaking Underground Storage Tanks on Indian Land
Source: Environmental Protection Agency
Telephone: 617-918-1313
Leaking Underground Storage Tanks on Indian land in Arizona, California, New Mexico and Nevada

INDIAN UST: Underground Storage Tanks on Indian Land
Source: EPA Region 9
Telephone: 415-972-3368
Underground Storage Tanks on Indian land in Arizona, California, New Mexico and Nevada

HISTORICAL AND OTHER DATABASE(S)

Depending on the geographic area covered by the EDR Report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included.

Other Databases

Manufactured Gas Plants: EDR Proprietary Manufactured Gas Plants
The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

EDR Historical Auto Stations: EDR Proprietary Historic Gas Stations
EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include

gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc.

EDR Historical Cleaners: EDR Proprietary Historic Dry Cleaners
EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc.

7.1 TARGET PROPERTY SEARCH RESULTS

A search of available environmental records was conducted by Environmental Data Resources, Inc. (EDR) and reviewed a part of this ESA. The EDR database report meets the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) for the evaluation of environmental risk associated with a parcel of real estate. The subject property was not identified on any of the databases searched.

7.2 SURROUNDING SITES SEARCH RESULTS

EDR was utilized to conduct a search of environmental databases within a 1-mile radius of the subject site to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) for the evaluation of environmental risk associated with a parcel of real estate. Identified properties that are down-gradient of the subject site are not listed herein. Additionally, some identified properties are listed on multiple databases and have been excluded from the duplicative databases herein. Refer to Appendix E for the EDR Report.

STANDARD ENVIRONMENTAL RECORDS

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database include: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites. A review of the ENVIROSTOR list has revealed that there are 4 ENVIROSTOR sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Dir/Dist	Map ID	Page
Menifee Valley Ranch School	McCall Blvd Menifee Street	SE 0 – 1/8	1	8
McCall Mesa K-8 School	McCall Blvd Junipero	SW 0-1/8	2	11

Equal/Higher Elevation	Address	Dir/Dist	Map ID	Page
Elementary School #1	Chambers Avenue	WSW ½-1	3	14
Proposed Elementary	Rouse Road	W ½-1	4	17

This category contains proposed and existing school sites that were being evaluated by DTSC for possible hazardous materials contamination. The investigations did not reveal any contamination at the sites that would be considered a REC and no further action was required. This listing does not represent a release of hazardous are therefore the sites are not considered a REC.

Orphan Sites: These are sites that cannot be mapped because of poor or inadequate information relating to the location of the site in relation to the subject site. Further information was not obtained for these sites.

Based on the information obtained from the EDR report, all of the sites could be eliminated as potential locations of environmental concern to the subject site as they are located greater than one mile from the project site or are a permitted (permit issued to operate) local/State/federal operation.

7.3 VAPOR ENCROACHMENT

The purpose of the preliminary vapor encroachment screen is to identify a vapor encroachment condition (VEC), which is the presence or likely presence of vapor chemicals of concern (COC) in subsurface soils at the site caused by the release of volatile organic compounds from contaminated soils or groundwater either on or near the site. The potential for VECs beneath the site was evaluated using EDR's Vapor Encroachment Screen in accordance with ASTM E 2600-10 Standard Guide for Vapor Encroachment Screening. The evaluation included performing a Search Distance Test to identify if there are any known or potential contaminated properties surrounding or up gradient of the site within specific search radii, a COC test (for those known or suspect contaminated sites identified within the Search Distance Test) to evaluate whether or not COCs are likely to be present, and a Critical Distance Test to evaluate whether or not COCs in a contaminated plume may be within the critical distance of the site (100 feet for non-petroleum hydrocarbon contaminants and 30 feet for petroleum hydrocarbons contaminants).

A review of the Vapor Encroachment Screen, as provided by EDR, and dated June 10, 2022 has revealed two COC site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Dir/Dist	Map ID	Page
Menifee Valley Ranch School	McCall Blvd Menifee Street	SE 1/10 – 1/3	1	8
McCall Mesa K-8 School	McCall Blvd Junipero	SSW 1/10-1/3	2	11

These sites are not anticipated to present any environmental impact to the subject property as the listing herein is a required reporting of their operations and not a violation of local, state, or federal regulations. Refer to Appendix E-1 for Vapor Encroachment Screen Report.

8.0 CONCLUSION

Summary: The review of the EDR records search revealed no sites of concern within the vicinity of the subject property that could represent a REC.

Based on a visual inspection of the subject site and the surrounding area; an environmental records search and review of local, federal, and State databases; and in accordance with the limitations presented in this report, Lilburn Corporation presents the following conclusions concerning the subject site:

- No evidence was observed that the property has been used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility. Additionally no evidence was observed that there have been any previously damaged or discarded automotive or industrial batteries, or pesticides, paints, or other chemicals individually stored on or used at the property or at the subject site. No industrial drums (typically 55 gal (208 L)) or sacks of chemicals were observed on the property.
- No evidence that fill dirt has been brought onto the property that originated from a contaminated site or from an unknown origin was observed. Refer to Section 4.0 for soil sampling findings.
- No pits, ponds, or lagoons were observed on the property in connection with waste treatment or waste disposal.
- No signs or evidence or of stained soil were observed on the property.
- No evidence was observed of any registered or unregistered storage tanks (above or underground) located on the property and no observations of any vent pipes, fill pipes, or access ways indicating a fill pipe protruding from the ground on the property or adjacent to any structure located on the property were made.
- No indication or evidence of leaks, spills, or staining by substances other than water, or foul odors, associated with any flooring drains, walls, ceilings or exposed grounds on the property was observed.
- No observations were made of evidence that any hazardous substances or petroleum products, unidentified waste materials, tires, automotive or industrial batteries, or any other waste materials have been buried and/or burned on the property.
- No transformer, capacitor, or any hydraulic equipment for which there are any records indicating the presence of PCBs was observed.
- No evidence was observed indicating any adjoining property was used as a gasoline station, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility.

- Local records reviewed to date have not revealed environmental concerns or issues that would be considered an immediate impairment to property development (pending San Bernardino County Fire Department findings).
- No geologic or hydrogeologic impairments to the subject site were encountered.
- Federal and State environmental databases revealed no environmental issues, which would be considered "an impairment" or REC to the subject site. Refer to Appendix E for a copy of the EDR Reports.

Based on the field reconnaissance of the site a Phase I and limited Phase II site assessment is sufficient to evaluate the property in question and additional site investigations are not recommended.

CERTIFICATION

I, Frank Amendola, certify and agree that:

(1) The inspector has no present or contemplated future interest in the site inspected.

(2) The inspector has no personal interest in or bias with respect to the subject matter of the assessment report or the participants to the sale. This Site Assessment Report is not based in whole or in part upon the race, color, or national origin of the prospective owners or occupants of the site inspected, or upon the race, color or national origin of the present owners or occupants of the properties in the vicinity of the site inspected.

(3) The inspector has personally inspected the site and has made an exterior inspection of all adjacent properties identified in the report. To the best of the inspector's knowledge and belief, all statements and information in this Site Assessment Report are true and correct, and the inspector has not knowingly withheld any significant information.

(4) The legal description and address furnished is correct according to the information furnished to the inspector.

(5) This Site Assessment Report was prepared in conformity with and is subject to the requirements of the Code of Professional Ethics and Standards of Professional Conduct of the environmental organizations with which the inspector is affiliated.

(6) All conclusions and opinions concerning the subject site that are set forth in the Site Assessment Report were prepared by the inspector whose signature appears below.

(7) I declare that to the best of my professional knowledge and belief, I meet the definition of an Environmental Professional as defined in ASTM E 1527-05 and 40 CFR 312.10. I have the specific qualification based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed all appropriate inquiries in conformance with the standard and practices set forth in 40 CFR Part 312.

Prepared By:



Frank Amendola

QUALIFICATIONS STATEMENT

Lilburn Corporation is a full service environmental consulting company with extensive experience in the completion of Phase I ESAs having completed more than 50 ESAs since 1999. Lilburn staff responsible for preparation of Phase I ESAs (including this document) have extensive experience in completing Phase I ESAs in accordance with the current American Society of Testing and Materials standard practice document (ASTM E 1527-05). The resumes of the individual environmental professionals responsible for the completion of this Phase I ESA are included in Appendix F.

This Phase I ESA was completed under the direction of an "Environmental Professional" as defined in ASTM E 1527-005 and 40 CFR 312.10. The Environmental Professional was involved in the planning of the site reconnaissance and the interviews as well as the review and preparation of the report.

LIMITATIONS

The services described in this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. Not laboratory testing was performed in conjunction with this report. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, nor the use of segregated portions of this report.

The purpose of an environmental assessment is to reasonably evaluate the potential for or actual impact of past practices on a given site area. In performing an environmental assessment, it is understood that a balance must be struck between a reasonable inquiry into the environmental issues and an exhaustive analysis of each conceivable issue of potential concern. The following paragraphs discuss the assumptions and parameters under which such an opinion is rendered.

No investigation is thorough enough to exclude the presence of hazardous materials at a given site. If hazardous conditions have not been identified during the assessment, such a finding should not therefore be construed as a guarantee of the absence of such materials on the site, but rather as the result of the services performed within the scope, limitations, and cost of the work performed.

Environmental conditions may exist at the site that cannot be identified by visual observation. Where subsurface work was performed, our professional opinions are based in part on interpretation of data from discrete sampling locations that may not represent actual conditions at unsampled locations.

Except where there is express concern of our client, or where specific environmental contaminants have been previously reported by others, naturally occurring toxic substances, potential environmental contaminants inside buildings, or contaminant concentrations that are not of current environmental concern may not be reflected in this document.

REFERENCES

Aerial Photo Decade Package, Environmental Data Resources, Inc., (June 9, 2022)

Historical Topographic Map Report, Environmental Data Resources, Inc., (June 9, 2022)

Summary Radius Map Report, Environmental Data Resources, Inc., (June 9, 2022)

EDR Vapor Encroachment Screen, (June 10, 2022)

Building Report, Environmental Data Resources, Inc., (June 22, 2022)

City of Menifee, Records Search Request. (June 22, 2022).

Certified Sanborn Map Report, Environmental Data Resources, Inc., (June 9, 2022)

Southern California Earthquake Data Center, www.data.scec.org

California City Radon Data, http://www.city-data.com/radon-zones/California/California.html

APPENDIX A
AERIAL PHOTOGRAPHS

Junipero Road and McCall Blvd

Junipero Rd

Menifee, CA 92585

Inquiry Number: 7013948.8

June 09, 2022

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com


INQUIRY #: 7013948.8
YEAR: 2016
= 500'
N
EDR


INQUIRY #: 7013948.8
YEAR: 2012
= 500'
N
EDR


INQUIRY #: 7013948.8
YEAR: 2006
= 500'
N
EDR


INQUIRY #: 7013948.8
YEAR: 1997
= 500'
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EDR


INQUIRY #: 7013948.8
YEAR: 1985
= 500'
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EDR


INQUIRY #: 7013948.8
YEAR: 1978
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EDR


INQUIRY #: 7013948.8
YEAR: 1967
= 500'
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EDR



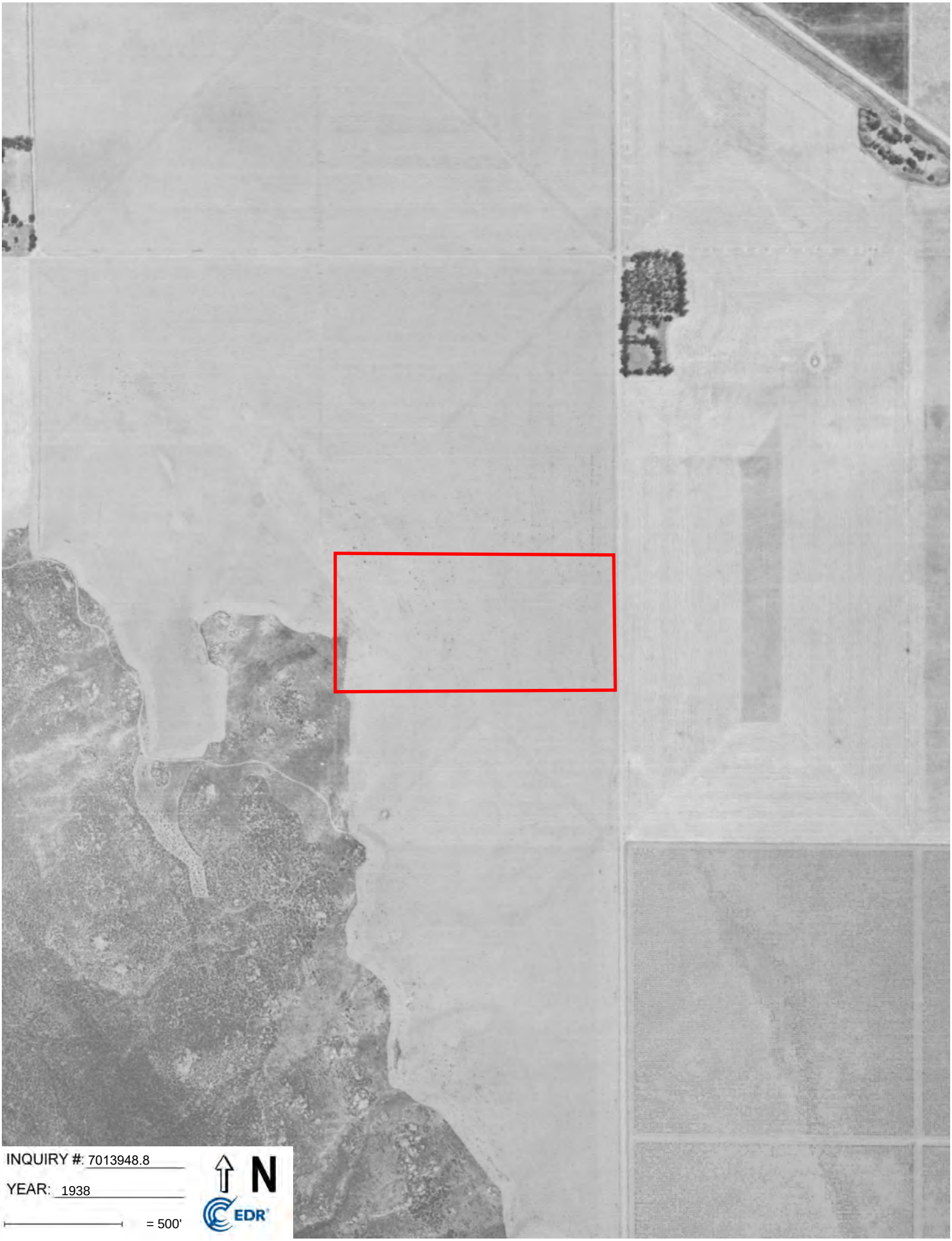
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YEAR: 1953

= 500'

N

EDR



INQUIRY #: 7013948.8

YEAR: 1938

= 500'

N

EDR

APPENDIX B
HISTORICAL TOPOGRAPHIC (USGS) MAPS

Junipero Road and McCall Blvd

Junipero Rd

Menifee, CA 92585

Inquiry Number: 7013948.4

June 09, 2022

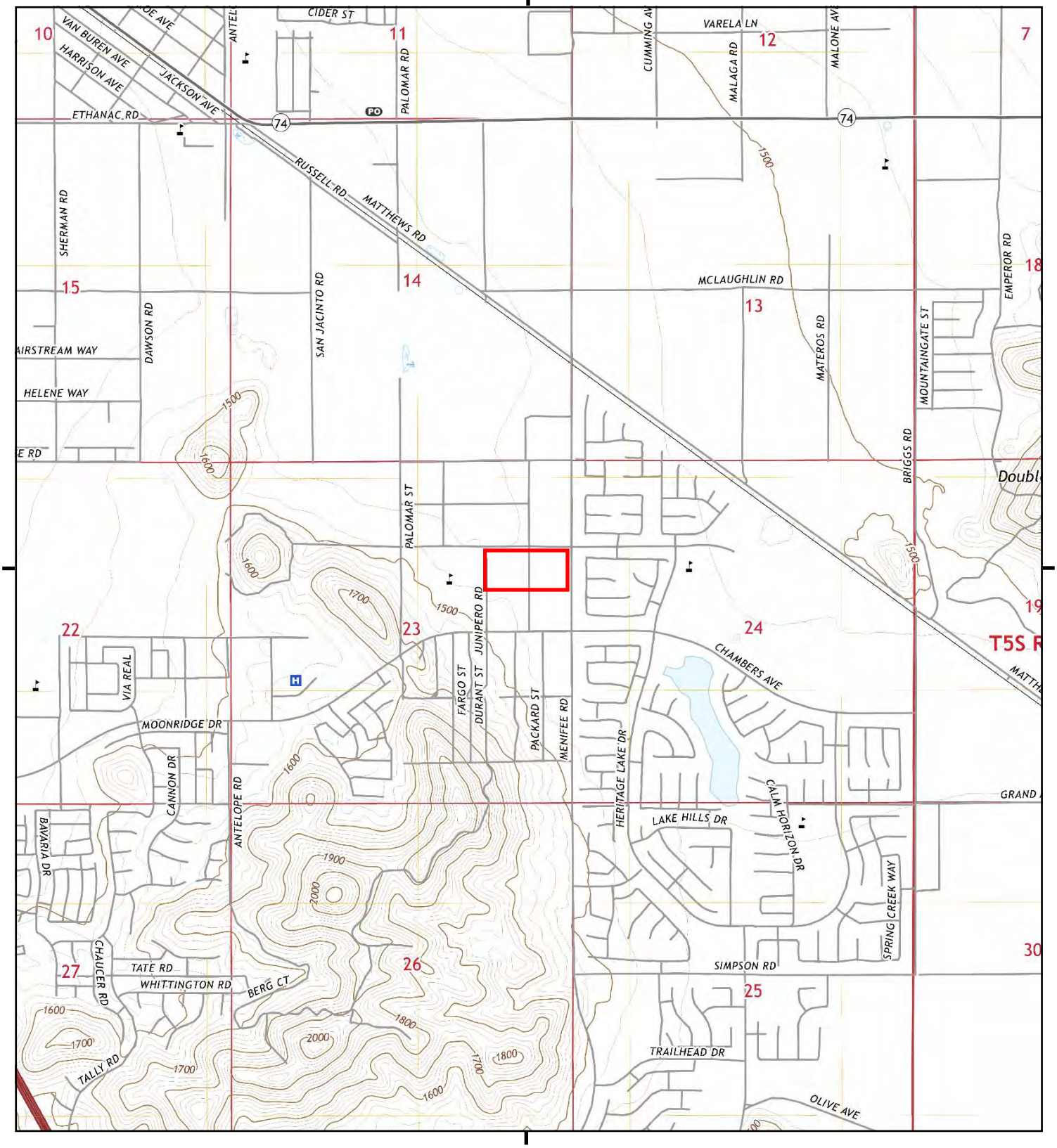
EDR Historical Topo Map Report

with QuadMatch™

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Historical Topo Map

2018



This report includes information from the following map sheet(s).

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W E
SW S SE

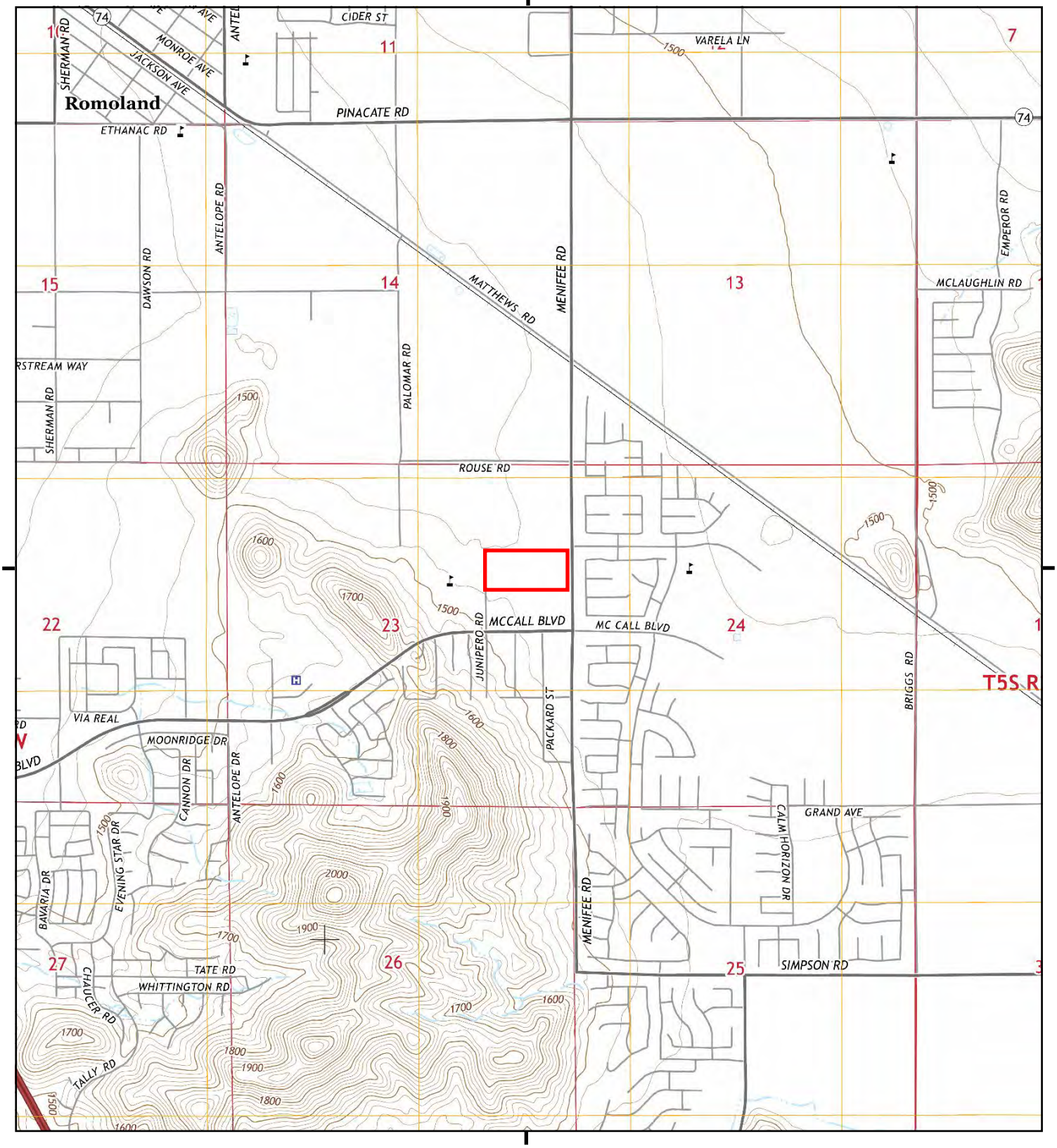
TP, Romoland, 2018, 7.5-minute

SITE NAME: Junipero Road and McCall Blvd
ADDRESS: Junipero Rd
Menifee, CA 92585
CLIENT: Lilburn Corporation

N

Historical Topo Map

2015



This report includes information from the following map sheet(s).

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SW S SE

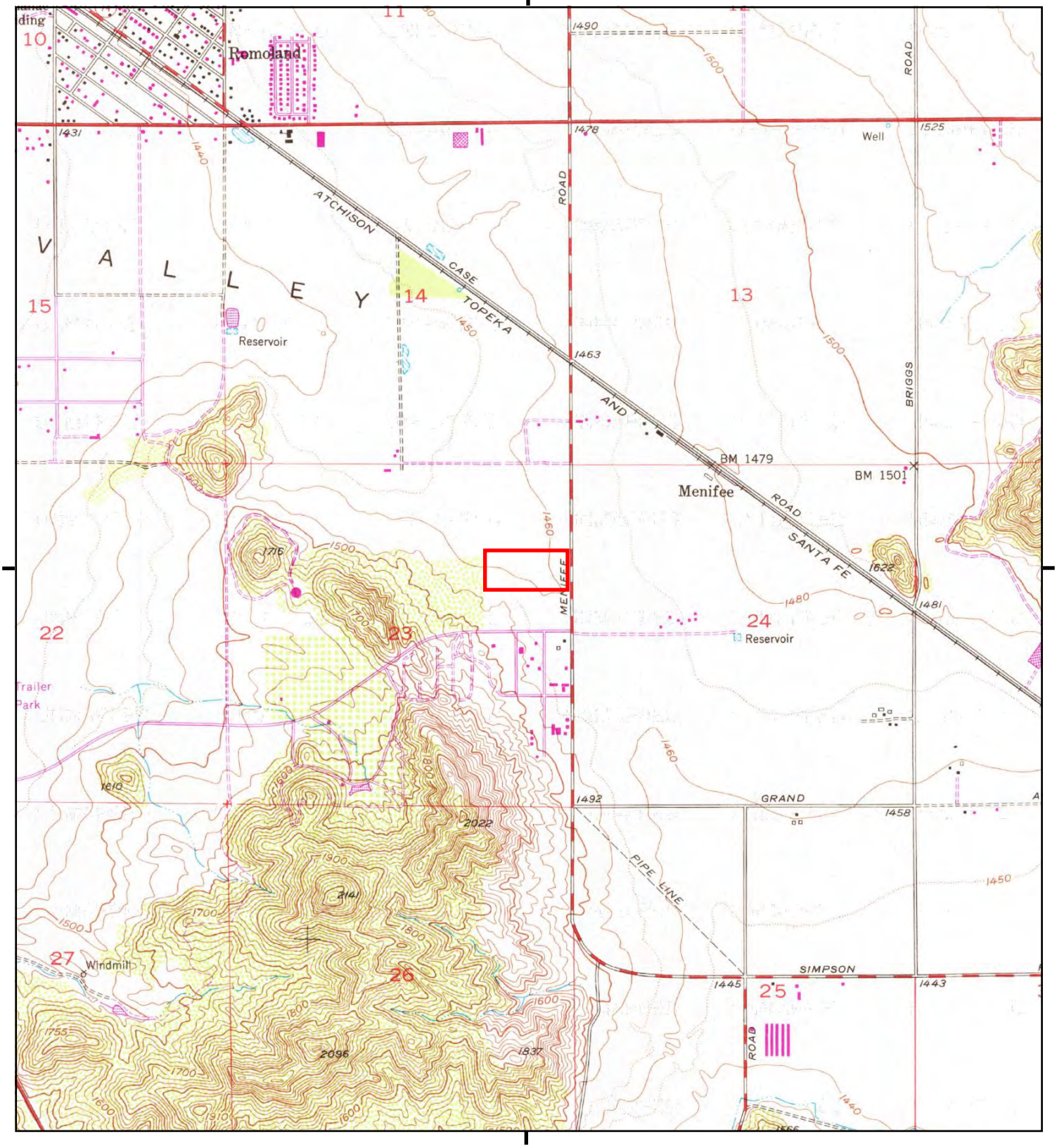
TP, Romoland, 2015, 7.5-minute

SITE NAME: Junipero Road and McCall Blvd
ADDRESS: Junipero Rd
Menifee, CA 92585
CLIENT: Lilburn Corporation

N

Historical Topo Map

1979



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SW S SE

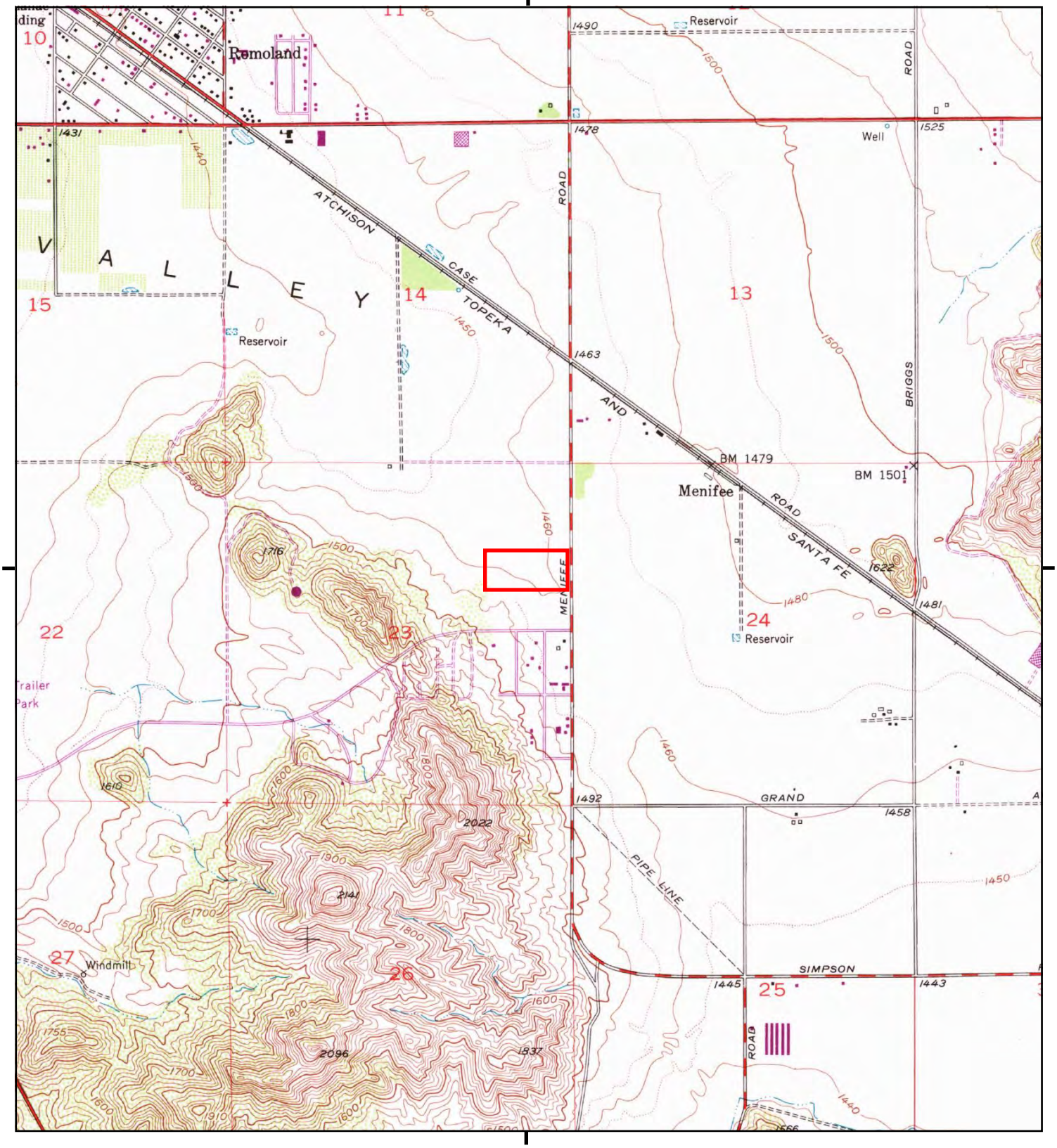
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SITE NAME: Junipero Road and McCall Blvd
ADDRESS: Junipero Rd
Menifee, CA 92585
CLIENT: Lilburn Corporation

N

Historical Topo Map

1973



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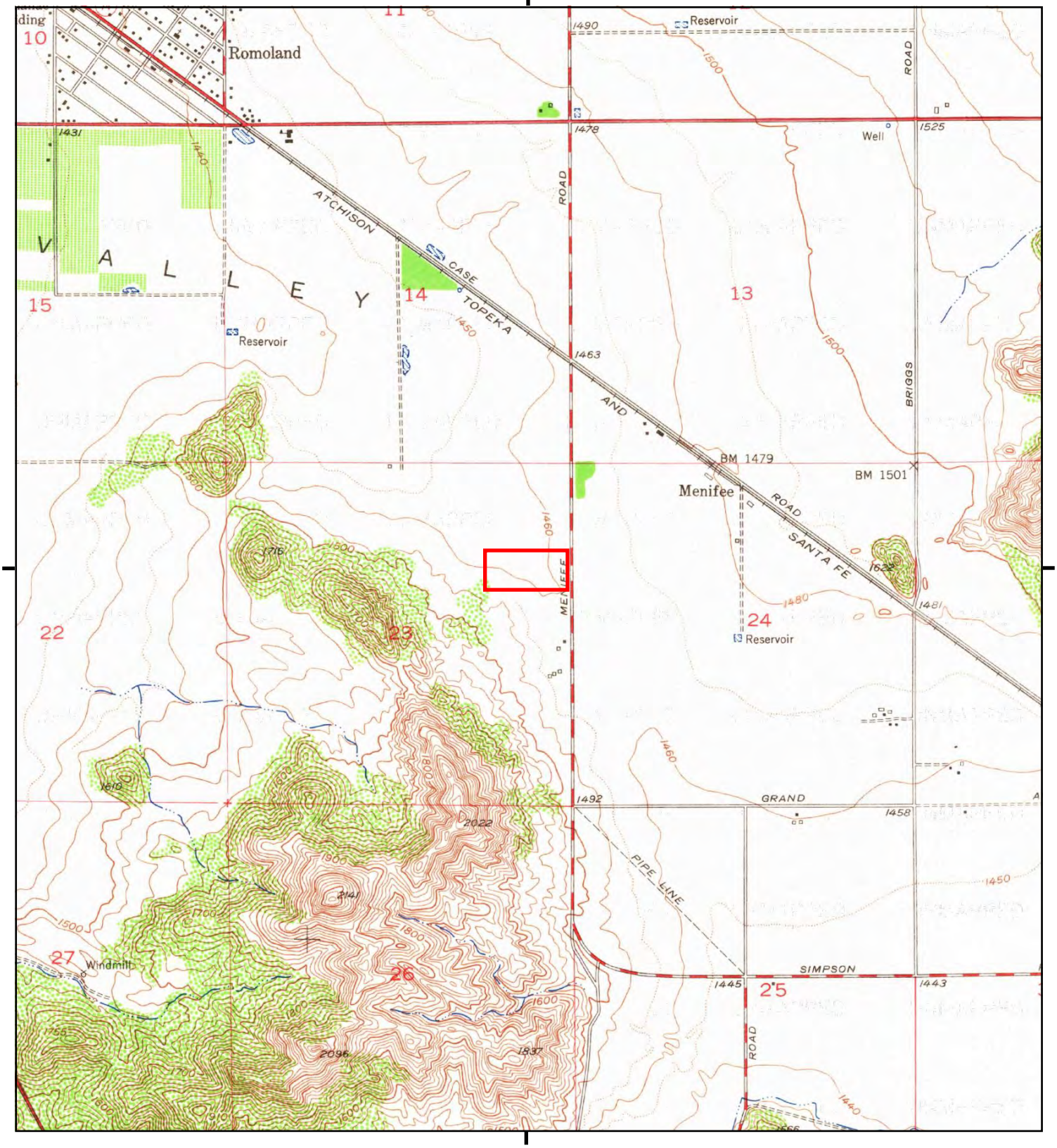
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SITE NAME: Junipero Road and McCall Blvd
ADDRESS: Junipero Rd
Menifee, CA 92585
CLIENT: Lilburn Corporation

N

Historical Topo Map

1953



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SW S SE

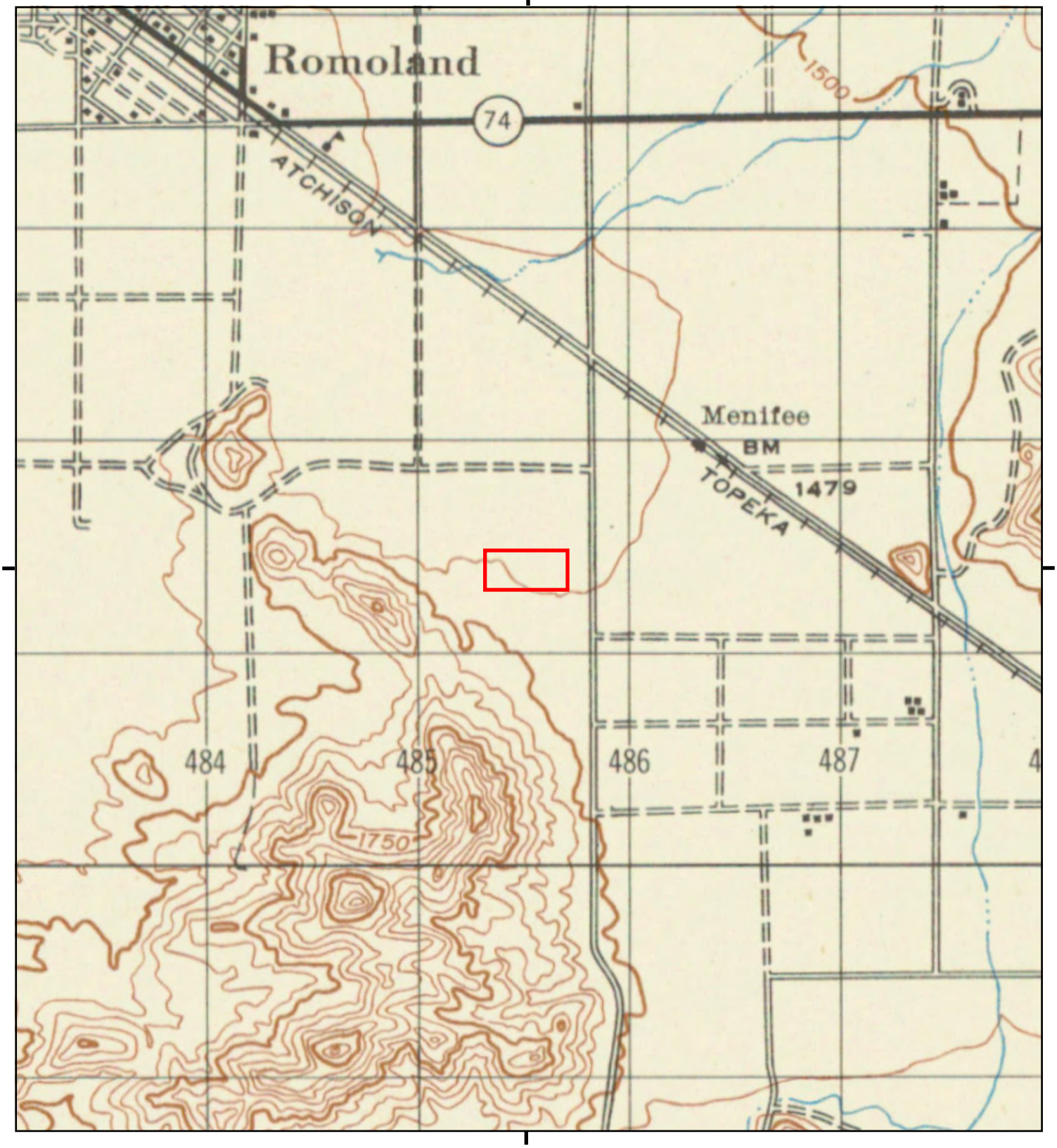
TP, Romoland, 1953, 7.5-minute

SITE NAME: Junipero Road and McCall Blvd
ADDRESS: Junipero Rd
Menifee, CA 92585
CLIENT: Lilburn Corporation

N

Historical Topo Map

1947



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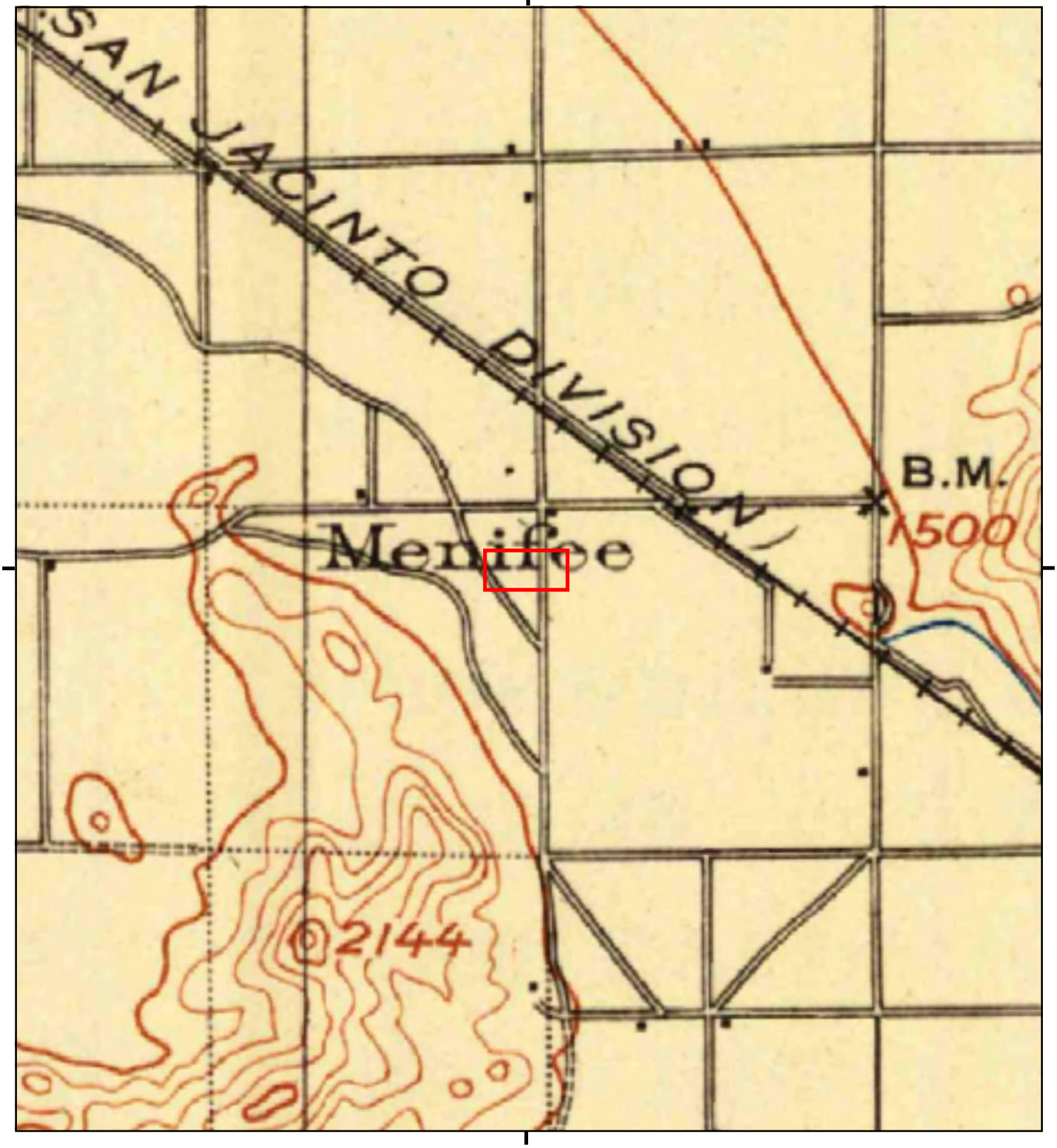
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NW N NE
W E
SW S SE

TP, MURRIETA, 1947, 15-minute

SITE NAME: Junipero Road and McCall Blvd
ADDRESS: Junipero Rd
Menifee, CA 92585
CLIENT: Lilburn Corporation

N



This report includes information from the following map sheet(s).

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W E
SW S SE

TP, Elsinore, 1901, 30-minute

SITE NAME: Junipero Road and McCall Blvd
ADDRESS: Junipero Rd
Menifee, CA 92585
CLIENT: Lilburn Corporation

N

APPENDIX C
SITE PHOTOS

Phase I Environmental Site Assessment, Menifee Phase I/II Property

Subject Site Photos



Photo 1: Looking at the northwestern portion of the site from Junipero Road.



Photo 2: Looking south from the Site at E. Heritage Lake Drive.



Photo 3: Looking west from the eastern portion of the Site.



Photo 4: Looking west from Menifee Road across the subject Site.

Surrounding land uses



Photo 3: View west of subject site.



Photo 4: View east of the subject site.



Photo 5: View north of subject site.



Photo 6: View south of the subject site

APPENDIX D
LIMITED PHASE II
SUBSURFACE INVESTIGATION

LIMITED SITE INVESTIGATION

Menifee Development

Northeast Intersection of Junipero Road and McCall Boulevard

Menifee, Riverside County, California

July 18, 2022

Terracon Project No. 60227232



Prepared for:
Lilburn Corporation
San Bernardino, California

Prepared by:
Terracon Consultants, Inc.
Laguna Hills, California

terracon.com

Terracon

Environmental ■ Facilities ■ Geotechnical ■ Materials

Terracon

July 18, 2022

Ms. Cheryl Tubbs
Lilburn Corporation
1905 Business Center Drive
San Bernardino, CA 92408-3460

Telephone: (909) 890-1818
E-mail: cheryl@lilburncorp.com

Re: Proposal for Limited Site Investigation
Menifee Development
Northeast Intersection of Junipero Road and McCall Boulevard
Menifee, Riverside County, California
Terracon Project No. 60227232

Dear Ms. Tubbs:

Terracon Consultants, Inc. (Terracon) is pleased to submit the enclosed Limited Site Investigation report for the above referenced site. This assessment was performed in general accordance with Terracon's Proposal for Limited Site Investigation, dated June 8, 2022, and Terracon's Agreement for Services, executed June 9, 2022.

We appreciate the opportunity to perform these services for Lilburn Corporation . Please contact the undersigned at (949) 864-2078 if you have questions regarding the information provided in the report.

Sincerely,
Terracon Consultants, Inc.

Eric J. St. Michel
Staff Scientist

Todd G. McFarland, P.G., C.H.G.
Environmental Department Manager

Attachments



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LIMITED SITE INVESTIGATION
MENIFEE DEVELOPMENT
NORTHEAST INTERSECTION OF JUNIPERO ROAD AND MCCALL BOULEVARD
MENIFEE, RIVERSIDE COUNTY, CALIFORNIA
Terracon Project No. 60227232
July 18, 2022

1.0 INTRODUCTION

1.1 Site Description

Site Name	Menifee Development
Site Location/Address	Northeast Intersection of Junipero Road and McCall Boulevard, Menifee, Riverside County, California
General Site Description	The property is identified as the Menifee development located northeast of the intersection of Junipero Road and McCall Boulevard in Menifee, Riverside County, California. Terracon understands that the site consists of approximately 17.67-acres of undeveloped land that was previously utilized for agricultural practices.

A topographic map and site diagram are included as **Exhibits 1** and **2** of **Appendix A**, respectively.

1.2 Scope of Work

Terracon conducted a Limited Site Investigation (LSI) at the site, northeast of the intersection of Junipero Road and McCall Boulevard in Menifee, Riverside County, California (the site). The scope of services was conducted to assess potential environmental impacts that may be present as a result of the below-listed recognized environmental conditions (RECs) and/or site concerns. Please note that Terracon did not conduct a Phase I Environmental Site Assessment (ESA) of the property, and that the scope of services was based solely on information provided in Lilburn Corporation's Phase I Environmental Site Assessment and Limited Phase II ESA dated December 2014, and additional information provided by the client.

REC/Site Concern	Description
Former agricultural use	Potential for improper use and/or application of pesticides and herbicides associated with the former agricultural uses.

The objective of the LSI was to assess the presence of chemicals commonly associated with the identified RECs and/or site concerns at concentrations above laboratory reporting limits in the on-site soil. Based on the surficial nature of the identified REC, groundwater and soil vapor sampling were not included in the proposed scope.

1.3 Standard of Care

Terracon's services were performed in a manner consistent with generally accepted practices of the profession undertaken in similar studies in the same geographical area during the same time period. Terracon makes no warranties, either express or implied, regarding the findings, conclusions, or recommendations. Please note that Terracon does not warrant the work of laboratories, regulatory agencies, or other third parties supplying information used in the preparation of the report. These LSI services were performed in accordance with the scope of work agreed with you, our client, as reflected in our proposal and were not restricted by ASTM E1903-19.

1.4 Additional Scope Limitations

Findings, conclusions, and recommendations resulting from these services are based upon information derived from the on-site activities and other services performed under this scope of work; such information is subject to change over time. Certain indicators of the presence of hazardous substances, petroleum products, or other constituents may have been latent, inaccessible, unobservable, nondetectable, or not present during these services, and we cannot represent that the site contains no hazardous substances, toxic materials, petroleum products, or other latent conditions beyond those identified during this LSI. Subsurface conditions may vary from those encountered at specific borings or wells or during other surveys, tests, assessments, investigations, or exploratory services; the data, interpretations, findings, and our recommendations are based solely upon data obtained at the time and within the scope of these services.

1.5 Reliance

This report has been prepared for the exclusive use of and reliance of Lilburn Corporation. Use or reliance by any other parties (except a governmental entity having jurisdiction over the site) is prohibited without the express written authorization of and reliance of Lilburn Corporation and Terracon. Any unauthorized distribution or reuse is at and reliance of Lilburn Corporation's sole risk. Notwithstanding the foregoing, reliance by authorized parties will be subject to the terms, conditions, and limitations stated in the proposal, LSI report, and Terracon's Terms and Conditions. The limitation of liability defined in the terms and conditions is the aggregate limit of Terracon's liability to and reliance of Lilburn Corporation unless otherwise agreed in writing.

2.0 FIELD ACTIVITIES

Terracon's field activities were conducted on June 17, 2022, by a staff geologist with oversight by a California-licensed Professional Geologist (P.G.) with Terracon. A site-specific health and safety plan was utilized by Terracon during field activities for all phases of this assessment.

2.1 Soil Borings and Soil Sampling

On June 17, 2022, Terracon advanced eighteen (18) shallow soil borings using a hand-auger to 0.5 feet below ground surface (bgs). The discrete samples were then composited by the laboratory at a ratio of 3:1, for a total of six (6) analytical samples. The approximate boring locations are shown on **Exhibit 2** of **Appendix A** and are summarized below.

advanced fourteen (14) shallow soil borings (B-1 through B-14) using a hand-auger to 0.5 feet below ground surface (bgs). The approximate boring locations are shown on **Exhibit 2** of **Appendix A** and are summarized below.

Table 2.1 – Soil Boring Summary

Sample ID	Composite Sample ID	Total Depth (feet bgs)	Soil Sample Depth* (feet bgs)	Sample Type	Assessment Area/REC
S-1A	COMP 3:1 (S-1A – S-1C)	0.5	0.5	Grab	Former agricultural use
S-1B					
S-1C					
S-2A	COMP 3:1 (S-2A – S-2C)	0.5	0.5	Grab	Former agricultural use
S-2B					
S-2C					
S-3A	COMP 3:1 (S-3A – S-3C)	0.5	0.5	Grab	Former agricultural use
S-3B					
S-3C					
S-4A	COMP 3:1 (S-4A – S-4C)	0.5	0.5	Grab	Former agricultural use
S-4B					
S-4C					
S-5A	COMP 3:1 (S-5A – S-5C)	0.5	0.5	Grab	Former agricultural use
S-5B					
S-5C					
S-6A	COMP 3:1 (S-6A – S-6C)	0.5	0.5	Grab	Former agricultural use
S-6B					
S-6C					

*Sample depths selected for analytical testing.

Terracon collected soil samples from the soil borings to observe soil lithology, color, moisture content, and staining, if present. The soils encountered generally consisted of dry to damp silty sand and sand to the maximum depth of exploration of 0.5 feet bgs. Indications of staining were not observed.

Terracon's soil sampling program included the collection of one soil sample from each boring. Terracon collected grab soil samples from the barrel of the hand-auger. Samples were retrieved from the sampler and placed in laboratory provided containers. The field crew used new nitrile gloves for each sample collection to prevent cross contamination. The samples were labeled, sealed, recorded on chain-of-custody forms and stored in a chilled ice chest pending delivery to the laboratory.

Reusable drilling and sampling equipment was cleaned using an Alconox® wash and two potable water rinses prior to the beginning of the project and before collecting each soil sample. Investigation derived waste (IDW) was not generated during this investigation.

3.0 LABORATORY ANALYTICAL METHODS

3.1 Soil

A total of eighteen (18) discrete soil samples were collected. The laboratory composited the discrete samples at a 3:1 ratio for laboratory analysis. The soil samples and completed chain-of-custody forms were relinquished to SunStar Laboratories Inc., in Lake Forest, California, a State-of-California certified laboratory for analysis. The selected soil samples were analyzed using standard Environmental Protection Agency (EPA) methods and included:

- organochlorine pesticides (OCPs) by EPA 8081A; and,
- arsenic by EPA 6010B.

4.0 DATA EVALUATION

Terracon screened the analytical data using the current residential and commercial Environmental Screening Levels (ESLs) published by San Francisco Bay Regional Water Quality Control Board (2019, Rev. 2). Arsenic data was additionally evaluated using California Department of Toxic Substances Control (DTSC), Determination of a Southern California Regional Background Arsenic Concentration in Soil. The detection of an analyte at a concentration above a screening level does not necessarily indicate an adverse impact to human health or the environment; however, an exceedance of a screening level may indicate that additional investigation is warranted.

4.1 Soil Analytical Results – OCPs and Arsenic

The soil analytical results for OCPs and arsenic were below the specified laboratory report limits and applicable screening limits, as summarized below.

Table 4.1 – Analytical Summary

	Arsenic (mg/kg)	OCPs[1] (mg/kg)	Toxaphene (mg/kg)
Reporting Limit	<5.0	<0.0050	<0.020
Screening Levels			
DTSC	12	--	--
Residential ESL	--	0.035[2]	0.51
Commercial ESL	--	0.15[2]	2.2

[1] Excludes toxaphene
[2] Aldrin ESL value, lowest screening level for OCPs

The soil analytical results are detailed in the laboratory analytical report and chain-of-custody forms, which are included in **Appendix B**.

5.0 FINDINGS AND CONCLUSIONS

The findings of this LSI are as follows:

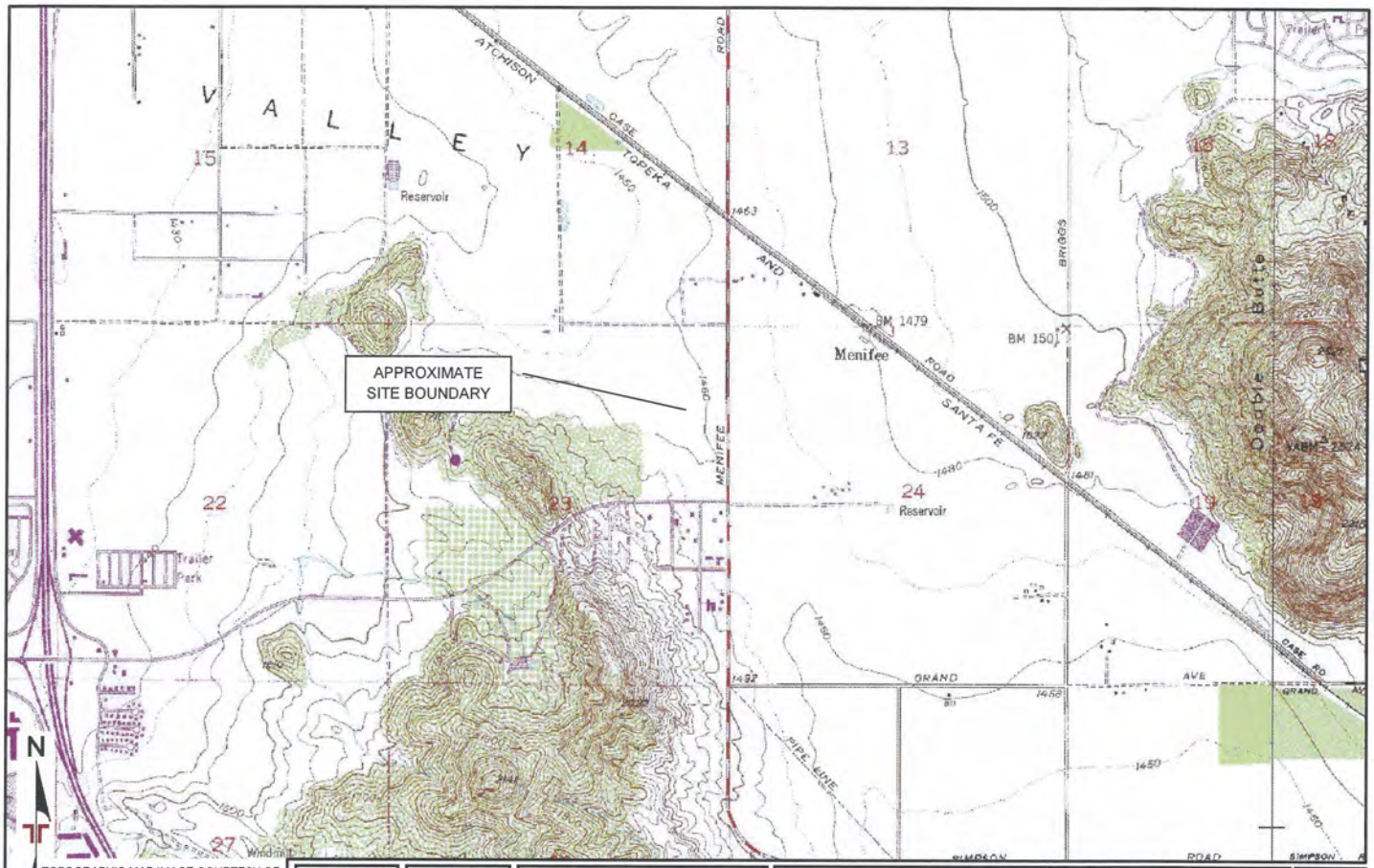
- No indications of staining or significant impacts based on field observations.
- Soil analysis for OCPs and arsenic were below the specified laboratory report limits and applicable screening limits.
- IDW was not generated for this investigation.
- Groundwater was not encountered to the total depth of 0.5 feet bgs.

Based on the field observations and laboratory data, evidence of significant impairment were not identified in the areas accessible and investigated, and at the time the investigation was conducted. Concentrations of detected analytes were below applicable residential and commercial screening levels.

6.0 RECOMMENDATIONS

Based on the findings of the LSI, no additional investigation appears warranted at this time.

APPENDIX A
EXHIBIT 1 – TOPOGRAPHIC MAP
EXHIBIT 2 – SITE DIAGRAM



TOPOGRAPHIC MAP IMAGE COURTESY OF THE U.S. GEOLOGICAL SURVEY QUADRANGLES INCLUDE: ROMOLAND, CA (1/1/1979) and WINCHESTER, CA (1/1/1979).

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Project Manager:	EJS
Drawn by:	EJS
Checked by:	TGM
Approved by:	TGM

Project No.	60227232
Scale:	1"=2,000'
File Name:	N/A
Date:	June 2022

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA 92653-1590

TOPOGRAPHIC MAP

Menifee Development
Northeast of the intersection of Junipero Road and McCall Boulevard
Menifee, Riverside County, California

Exhibit 1



AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Project Manager: EJS	Project No. 60227232
Drawn by: EJS	Scale: AS SHOWN
Checked by: TGM	File Name: N/A
Approved by: TGM	Date: July 2022

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA 92653-1590

SITE DIAGRAM

Menifee Development
Northeast Intersection of Junipero Road and McCall Blvd.
Menifee, Riverside County, California

Exhibit 2

APPENDIX B
ANALTICAL REPORT AND CHAIN-OF-CUSTODY

SunStar Laboratories, Inc.
PROVIDING QUALITY ANALYTICAL SERVICES NATIONWIDE

25712 Commercentre Drive
Lake Forest, California 92630
949.297.5020 Phone
949.297.5027 Fax

24 June 2022

Eric St. Michel
Terracon - Laguna Hills
23041 Avenida De La Carlota #350
Laguna Hills, CA 92653

RE: Manifee Development

Enclosed are the results of analyses for samples received by the laboratory on 06/17/22 14:23. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jeff Lee
Project Manager

SunStar Laboratories, Inc.
PROVIDING QUALITY ANALYTICAL SERVICES NATIONWIDE

25712 Commercentre Drive
Lake Forest, California 92630
949.297.5020 Phone
949.297.5027 Fax

Terracon - Laguna Hills	Project: Manifee Development	
23041 Avenida De La Carlota #350	Project Number: 60227232	**Reported:**
Laguna Hills CA, 92653	Project Manager: Eric St. Michel	06/24/22 16:58

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
COMP 3:1 (S-1A - S-1C)	T221733-19	Soil	06/17/22 08:55	06/17/22 14:23
COMP 3:1 (S-2A - S-2C)	T221733-20	Soil	06/17/22 09:25	06/17/22 14:23
COMP 3:1 (S-3A - S-3C)	T221733-21	Soil	06/17/22 09:50	06/17/22 14:23
COMP 3:1 (S-4A - S-4C)	T221733-22	Soil	06/17/22 10:10	06/17/22 14:23
COMP 3:1 (S-5A - S-5C)	T221733-23	Soil	06/17/22 10:40	06/17/22 14:23
COMP 3:1 (S-6A - S-6C)	T221733-24	Soil	06/17/22 11:00	06/17/22 14:23

SunStar Laboratories, Inc.

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Jeff Lee, Project Manager

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Terracon - Laguna Hills	Project: Manifee Development	
23041 Avenida De La Carlota #350	Project Number: 60227232	**Reported:**
Laguna Hills CA, 92653	Project Manager: Eric St. Michel	06/24/22 16:58

DETECTIONS SUMMARY

Sample ID: COMP 3:1 (S-1A - S-1C) **Laboratory ID:** T221733-19

No Results Detected

Sample ID: COMP 3:1 (S-2A - S-2C) **Laboratory ID:** T221733-20

No Results Detected

Sample ID: COMP 3:1 (S-3A - S-3C) **Laboratory ID:** T221733-21

No Results Detected

Sample ID: COMP 3:1 (S-4A - S-4C) **Laboratory ID:** T221733-22

No Results Detected

Sample ID: COMP 3:1 (S-5A - S-5C) **Laboratory ID:** T221733-23

No Results Detected

Sample ID: COMP 3:1 (S-6A - S-6C) **Laboratory ID:** T221733-24

No Results Detected

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Terracon - Laguna Hills	Project: Manifee Development	
23041 Avenida De La Carlota #350	Project Number: 60227232	**Reported:**
Laguna Hills CA, 92653	Project Manager: Eric St. Michel	06/24/22 16:58

SunStar Laboratories, Inc.

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Terracon - Laguna Hills	Project: Manifee Development	
23041 Avenida De La Carlota #350	Project Number: 60227232	**Reported:**
Laguna Hills CA, 92653	Project Manager: Eric St. Michel	06/24/22 16:58

COMP 3:1 (S-1A - S-1C)

T221733-19 (Soil)

SunStar Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Metals by EPA 6010B									
Arsenic	ND	5.00	mg/kg	1	22F0296	06/17/22	06/24/22	EPA 6010b	
Organochlorine Pesticides by EPA Method 8081A									
alpha-BHC	ND	0.0050	mg/kg	1	22F0297	06/17/22	06/20/22	EPA 8081A	
gamma-BHC (Lindane)	ND	0.0050	"	"	"	"	"	"	
beta-BHC	ND	0.0050	"	"	"	"	"	"	
delta-BHC	ND	0.0050	"	"	"	"	"	"	
Heptachlor	ND	0.0050	"	"	"	"	"	"	
Aldrin	ND	0.0050	"	"	"	"	"	"	
Heptachlor epoxide	ND	0.0050	"	"	"	"	"	"	
gamma-Chlordane	ND	0.0050	"	"	"	"	"	"	
alpha-Chlordane	ND	0.0050	"	"	"	"	"	"	
Endosulfan I	ND	0.0050	"	"	"	"	"	"	
4,4'-DDE	ND	0.0050	"	"	"	"	"	"	
Dieldrin	ND	0.0050	"	"	"	"	"	"	
Endrin	ND	0.0050	"	"	"	"	"	"	
4,4'-DDD	ND	0.0050	"	"	"	"	"	"	
Endosulfan II	ND	0.0050	"	"	"	"	"	"	
4,4'-DDT	ND	0.0050	"	"	"	"	"	"	
Endrin aldehyde	ND	0.0050	"	"	"	"	"	"	
Endosulfan sulfate	ND	0.0050	"	"	"	"	"	"	
Methoxychlor	ND	0.0050	"	"	"	"	"	"	
Endrin ketone	ND	0.0050	"	"	"	"	"	"	
Toxaphene	ND	0.020	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*86.3 %*	*35-140*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*97.7 %*	*35-140*		"	"	"	"	

SunStar Laboratories, Inc.

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Terracon - Laguna Hills	Project: Manifee Development	
23041 Avenida De La Carlota #350	Project Number: 60227232	**Reported:**
Laguna Hills CA, 92653	Project Manager: Eric St. Michel	06/24/22 16:58

COMP 3:1 (S-2A - S-2C)

T221733-20 (Soil)

SunStar Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Metals by EPA 6010B									
Arsenic	ND	5.00	mg/kg	1	22F0296	06/17/22	06/24/22	EPA 6010b	
Organochlorine Pesticides by EPA Method 8081A									
alpha-BHC	ND	0.0050	mg/kg	1	22F0297	06/17/22	06/20/22	EPA 8081A	
gamma-BHC (Lindane)	ND	0.0050	"	"	"	"	"	"	
beta-BHC	ND	0.0050	"	"	"	"	"	"	
delta-BHC	ND	0.0050	"	"	"	"	"	"	
Heptachlor	ND	0.0050	"	"	"	"	"	"	
Aldrin	ND	0.0050	"	"	"	"	"	"	
Heptachlor epoxide	ND	0.0050	"	"	"	"	"	"	
gamma-Chlordane	ND	0.0050	"	"	"	"	"	"	
alpha-Chlordane	ND	0.0050	"	"	"	"	"	"	
Endosulfan I	ND	0.0050	"	"	"	"	"	"	
4,4'-DDE	ND	0.0050	"	"	"	"	"	"	
Dieldrin	ND	0.0050	"	"	"	"	"	"	
Endrin	ND	0.0050	"	"	"	"	"	"	
4,4'-DDD	ND	0.0050	"	"	"	"	"	"	
Endosulfan II	ND	0.0050	"	"	"	"	"	"	
4,4'-DDT	ND	0.0050	"	"	"	"	"	"	
Endrin aldehyde	ND	0.0050	"	"	"	"	"	"	
Endosulfan sulfate	ND	0.0050	"	"	"	"	"	"	
Methoxychlor	ND	0.0050	"	"	"	"	"	"	
Endrin ketone	ND	0.0050	"	"	"	"	"	"	
Toxaphene	ND	0.020	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*92.9 %*	*35-140*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*110 %*	*35-140*		"	"	"	"	

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Laguna Hills CA, 92653	Project Manager: Eric St. Michel	06/24/22 16:58

COMP 3:1 (S-3A - S-3C)

T221733-21 (Soil)

SunStar Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Metals by EPA 6010B									
Arsenic	ND	5.00	mg/kg	1	22F0296	06/17/22	06/24/22	EPA 6010b	
Organochlorine Pesticides by EPA Method 8081A									
alpha-BHC	ND	0.0050	mg/kg	1	22F0297	06/17/22	06/20/22	EPA 8081A	
gamma-BHC (Lindane)	ND	0.0050	"	"	"	"	"	"	
beta-BHC	ND	0.0050	"	"	"	"	"	"	
delta-BHC	ND	0.0050	"	"	"	"	"	"	
Heptachlor	ND	0.0050	"	"	"	"	"	"	
Aldrin	ND	0.0050	"	"	"	"	"	"	
Heptachlor epoxide	ND	0.0050	"	"	"	"	"	"	
gamma-Chlordane	ND	0.0050	"	"	"	"	"	"	
alpha-Chlordane	ND	0.0050	"	"	"	"	"	"	
Endosulfan I	ND	0.0050	"	"	"	"	"	"	
4,4'-DDE	ND	0.0050	"	"	"	"	"	"	
Dieldrin	ND	0.0050	"	"	"	"	"	"	
Endrin	ND	0.0050	"	"	"	"	"	"	
4,4'-DDD	ND	0.0050	"	"	"	"	"	"	
Endosulfan II	ND	0.0050	"	"	"	"	"	"	
4,4'-DDT	ND	0.0050	"	"	"	"	"	"	
Endrin aldehyde	ND	0.0050	"	"	"	"	"	"	
Endosulfan sulfate	ND	0.0050	"	"	"	"	"	"	
Methoxychlor	ND	0.0050	"	"	"	"	"	"	
Endrin ketone	ND	0.0050	"	"	"	"	"	"	
Toxaphene	ND	0.020	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*90.3 %*	*35-140*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*111 %*	*35-140*		"	"	"	"	

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23041 Avenida De La Carlota #350	Project Number: 60227232	**Reported:**
Laguna Hills CA, 92653	Project Manager: Eric St. Michel	06/24/22 16:58

COMP 3:1 (S-4A - S-4C)

T221733-22 (Soil)

SunStar Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Metals by EPA 6010B									
Arsenic	ND	5.00	mg/kg	1	22F0296	06/17/22	06/24/22	EPA 6010b	
Organochlorine Pesticides by EPA Method 8081A									
alpha-BHC	ND	0.0050	mg/kg	1	22F0297	06/17/22	06/20/22	EPA 8081A	
gamma-BHC (Lindane)	ND	0.0050	"	"	"	"	"	"	
beta-BHC	ND	0.0050	"	"	"	"	"	"	
delta-BHC	ND	0.0050	"	"	"	"	"	"	
Heptachlor	ND	0.0050	"	"	"	"	"	"	
Aldrin	ND	0.0050	"	"	"	"	"	"	
Heptachlor epoxide	ND	0.0050	"	"	"	"	"	"	
gamma-Chlordane	ND	0.0050	"	"	"	"	"	"	
alpha-Chlordane	ND	0.0050	"	"	"	"	"	"	
Endosulfan I	ND	0.0050	"	"	"	"	"	"	
4,4'-DDE	ND	0.0050	"	"	"	"	"	"	
Dieldrin	ND	0.0050	"	"	"	"	"	"	
Endrin	ND	0.0050	"	"	"	"	"	"	
4,4'-DDD	ND	0.0050	"	"	"	"	"	"	
Endosulfan II	ND	0.0050	"	"	"	"	"	"	
4,4'-DDT	ND	0.0050	"	"	"	"	"	"	
Endrin aldehyde	ND	0.0050	"	"	"	"	"	"	
Endosulfan sulfate	ND	0.0050	"	"	"	"	"	"	
Methoxychlor	ND	0.0050	"	"	"	"	"	"	
Endrin ketone	ND	0.0050	"	"	"	"	"	"	
Toxaphene	ND	0.020	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*94.1 %*	*35-140*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*117 %*	*35-140*		"	"	"	"	

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23041 Avenida De La Carlota #350	Project Number: 60227232	**Reported:**
Laguna Hills CA, 92653	Project Manager: Eric St. Michel	06/24/22 16:58

COMP 3:1 (S-5A - S-5C)

T221733-23 (Soil)

SunStar Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Metals by EPA 6010B									
Arsenic	ND	5.00	mg/kg	1	22F0296	06/17/22	06/24/22	EPA 6010b	
Organochlorine Pesticides by EPA Method 8081A									
alpha-BHC	ND	0.0050	mg/kg	1	22F0297	06/17/22	06/20/22	EPA 8081A	
gamma-BHC (Lindane)	ND	0.0050	"	"	"	"	"	"	
beta-BHC	ND	0.0050	"	"	"	"	"	"	
delta-BHC	ND	0.0050	"	"	"	"	"	"	
Heptachlor	ND	0.0050	"	"	"	"	"	"	
Aldrin	ND	0.0050	"	"	"	"	"	"	
Heptachlor epoxide	ND	0.0050	"	"	"	"	"	"	
gamma-Chlordane	ND	0.0050	"	"	"	"	"	"	
alpha-Chlordane	ND	0.0050	"	"	"	"	"	"	
Endosulfan I	ND	0.0050	"	"	"	"	"	"	
4,4'-DDE	ND	0.0050	"	"	"	"	"	"	
Dieldrin	ND	0.0050	"	"	"	"	"	"	
Endrin	ND	0.0050	"	"	"	"	"	"	
4,4'-DDD	ND	0.0050	"	"	"	"	"	"	
Endosulfan II	ND	0.0050	"	"	"	"	"	"	
4,4'-DDT	ND	0.0050	"	"	"	"	"	"	
Endrin aldehyde	ND	0.0050	"	"	"	"	"	"	
Endosulfan sulfate	ND	0.0050	"	"	"	"	"	"	
Methoxychlor	ND	0.0050	"	"	"	"	"	"	
Endrin ketone	ND	0.0050	"	"	"	"	"	"	
Toxaphene	ND	0.020	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*97.3 %*	*35-140*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*116 %*	*35-140*		"	"	"	"	

SunStar Laboratories, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Jeff Lee, Project Manager

SunStar Laboratories, Inc.
PROVIDING QUALITY ANALYTICAL SERVICES NATIONWIDE

25712 Commercentre Drive
Lake Forest, California 92630
949.297.5020 Phone
949.297.5027 Fax

Terracon - Laguna Hills	Project: Manifee Development	
23041 Avenida De La Carlota #350	Project Number: 60227232	**Reported:**
Laguna Hills CA, 92653	Project Manager: Eric St. Michel	06/24/22 16:58

COMP 3:1 (S-6A - S-6C)

T221733-24 (Soil)

SunStar Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Metals by EPA 6010B									
Arsenic	ND	5.00	mg/kg	1	22F0296	06/17/22	06/24/22	EPA 6010b	
Organochlorine Pesticides by EPA Method 8081A									
alpha-BHC	ND	0.0050	mg/kg	1	22F0297	06/17/22	06/20/22	EPA 8081A	
gamma-BHC (Lindane)	ND	0.0050	"	"	"	"	"	"	
beta-BHC	ND	0.0050	"	"	"	"	"	"	
delta-BHC	ND	0.0050	"	"	"	"	"	"	
Heptachlor	ND	0.0050	"	"	"	"	"	"	
Aldrin	ND	0.0050	"	"	"	"	"	"	
Heptachlor epoxide	ND	0.0050	"	"	"	"	"	"	
gamma-Chlordane	ND	0.0050	"	"	"	"	"	"	
alpha-Chlordane	ND	0.0050	"	"	"	"	"	"	
Endosulfan I	ND	0.0050	"	"	"	"	"	"	
4,4′-DDE	ND	0.0050	"	"	"	"	"	"	
Dieldrin	ND	0.0050	"	"	"	"	"	"	
Endrin	ND	0.0050	"	"	"	"	"	"	
4,4′-DDD	ND	0.0050	"	"	"	"	"	"	
Endosulfan II	ND	0.0050	"	"	"	"	"	"	
4,4′-DDT	ND	0.0050	"	"	"	"	"	"	
Endrin aldehyde	ND	0.0050	"	"	"	"	"	"	
Endosulfan sulfate	ND	0.0050	"	"	"	"	"	"	
Methoxychlor	ND	0.0050	"	"	"	"	"	"	
Endrin ketone	ND	0.0050	"	"	"	"	"	"	
Toxaphene	ND	0.020	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*98.4 %*	*35-140*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*122 %*	*35-140*		"	"	"	"	

SunStar Laboratories, Inc.

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Jeff Lee, Project Manager

SunStar Laboratories, Inc.
PROVIDING QUALITY ANALYTICAL SERVICES NATIONWIDE

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Lake Forest, California 92630
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Terracon - Laguna Hills	Project: Manifee Development	
23041 Avenida De La Carlota #350	Project Number: 60227232	**Reported:**
Laguna Hills CA, 92653	Project Manager: Eric St. Michel	06/24/22 16:58

Metals by EPA 6010B - Quality Control

SunStar Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 22F0296 - EPA 3050B										
Blank (22F0296-BLK1)				Prepared: 06/17/22 Analyzed: 06/24/22						
Arsenic	ND	5.00	mg/kg							
LCS (22F0296-BS1)				Prepared: 06/17/22 Analyzed: 06/24/22						
Arsenic	93.6	5.00	mg/kg	100		93.6	75-125			
Matrix Spike (22F0296-MS1)	**Source: T221728-04**			Prepared: 06/17/22 Analyzed: 06/24/22						
Arsenic	89.4	5.00	mg/kg	100	11.7	77.6	75-125			
Matrix Spike Dup (22F0296-MSD1)	**Source: T221728-04**			Prepared: 06/17/22 Analyzed: 06/24/22						
Arsenic	96.8	5.00	mg/kg	100	11.7	85.1	75-125	8.01	20	

SunStar Laboratories, Inc.

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SunStar Laboratories, Inc.
PROVIDING QUALITY ANALYTICAL SERVICES NATIONWIDE

25712 Commercentre Drive
Lake Forest, California 92630
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Terracon - Laguna Hills	Project: Manifee Development	
23041 Avenida De La Carlota #350	Project Number: 60227232	**Reported:**
Laguna Hills CA, 92653	Project Manager: Eric St. Michel	06/24/22 16:58

Organochlorine Pesticides by EPA Method 8081A - Quality Control

SunStar Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 22F0297 - EPA 3550C ECD/GCMS										
Blank (22F0297-BLK1)				Prepared: 06/17/22 Analyzed: 06/20/22						
alpha-BHC	ND	0.0050	mg/kg							
gamma-BHC (Lindane)	ND	0.0050	"							
beta-BHC	ND	0.0050	"							
delta-BHC	ND	0.0050	"							
Heptachlor	ND	0.0050	"							
Aldrin	ND	0.0050	"							
Heptachlor epoxide	ND	0.0050	"							
gamma-Chlordane	ND	0.0050	"							
alpha-Chlordane	ND	0.0050	"							
Endosulfan I	ND	0.0050	"							
4,4'-DDE	ND	0.0050	"							
Dieldrin	ND	0.0050	"							
Endrin	ND	0.0050	"							
4,4'-DDD	ND	0.0050	"							
Endosulfan II	ND	0.0050	"							
4,4'-DDT	ND	0.0050	"							
Endrin aldehyde	ND	0.0050	"							
Endosulfan sulfate	ND	0.0050	"							
Methoxychlor	ND	0.0050	"							
Endrin ketone	ND	0.0050	"							
Toxaphene	ND	0.020	"							
Surrogate: Tetrachloro-meta-xylene	*0.00846*		"	*0.0100*		*84.6*	*35-140*			
Surrogate: Decachlorobiphenyl	*0.0107*		"	*0.0100*		*107*	*35-140*			
LCS (22F0297-BS1)				Prepared: 06/17/22 Analyzed: 06/20/22						
gamma-BHC (Lindane)	0.0312	0.0050	mg/kg	0.0404		77.1	40-120			
Heptachlor	0.0322	0.0050	"	0.0400		80.6	40-120			
Aldrin	0.0324	0.0050	"	0.0400		81.1	40-120			
Dieldrin	0.0326	0.0050	"	0.0402		81.0	40-120			
Endrin	0.0308	0.0050	"	0.0402		76.6	40-120			
4,4'-DDT	0.0238	0.0050	"	0.0404		58.9	33-147			
Surrogate: Tetrachloro-meta-xylene	*0.00914*		"	*0.0100*		*91.4*	*35-140*			
Surrogate: Decachlorobiphenyl	*0.0108*		"	*0.0100*		*108*	*35-140*			

SunStar Laboratories, Inc.

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Jeff Lee, Project Manager

SunStar Laboratories, Inc.
PROVIDING QUALITY ANALYTICAL SERVICES NATIONWIDE

25712 Commercentre Drive
Lake Forest, California 92630
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949.297.5027 Fax

Terracon - Laguna Hills	Project: Manifee Development	
23041 Avenida De La Carlota #350	Project Number: 60227232	**Reported:**
Laguna Hills CA, 92653	Project Manager: Eric St. Michel	06/24/22 16:58

Organochlorine Pesticides by EPA Method 8081A - Quality Control

SunStar Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 22F0297 - EPA 3550C ECD/GCMS										
LCS Dup (22F0297-BSD1)				Prepared: 06/17/22 Analyzed: 06/20/22						
gamma-BHC (Lindane)	0.0316	0.0050	mg/kg	0.0404		78.3	40-120	1.44	30	
Heptachlor	0.0328	0.0050	"	0.0400		82.1	40-120	1.90	30	
Aldrin	0.0326	0.0050	"	0.0400		81.5	40-120	0.519	30	
Dieldrin	0.0337	0.0050	"	0.0402		83.7	40-120	3.28	30	
Endrin	0.0318	0.0050	"	0.0402		79.0	40-120	3.10	30	
4,4'-DDT	0.0243	0.0050	"	0.0404		60.1	33-147	2.10	30	
Surrogate: Tetrachloro-meta-xylene	*0.00910*		"	*0.0100*		*91.0*	*35-140*			
Surrogate: Decachlorobiphenyl	*0.0108*		"	*0.0100*		*108*	*35-140*			

SunStar Laboratories, Inc.

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Jeff Lee, Project Manager

SunStar Laboratories, Inc.
PROVIDING QUALITY ANALYTICAL SERVICES NATIONWIDE

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Lake Forest, California 92630
949.297.5020 Phone
949.297.5027 Fax

Terracon - Laguna Hills	Project: Manifee Development	
23041 Avenida De La Carlota #350	Project Number: 60227232	**Reported:**
Laguna Hills CA, 92653	Project Manager: Eric St. Michel	06/24/22 16:58

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

SunStar Laboratories, Inc.

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Jeff Lee, Project Manager

Chain of Custody Record

Laboratory: Sunstar
Address: -
Contact: -
Phone: -
PO/SO#:

T221733

Terracon

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: Eric St. Michel	Site Contact:	Date:	COC No:
Terracon Consultants, Inc.	Tel/Fax:	Lab Contact:	Carrier:	1 of 2 COCs
23041 Avenida de la Carlota Ste 350	Analysis Turnaround Time			Sampler:
Laguna Hills, CA 92653	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 949-261-0051	TAT if different from Below _____			Walk-in Client:
	☒ Standard TAT			Lab Sampling:
Project Name: Manifee Development	☐ 72 Hours/3 Businss Days			
Site: Jamboree Road & McCall Blvd	☐ 48 Hours			Job / SDG No.:
PO# 60227232	☐ 24 Hours			

Lab ID	Client Sample ID	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	8015 - TPH gasoline	8015 - TPH diesel	8015 - TPH oil	8015 - TPH carbon chain	8260 - BTEX & Oxygenates	8260 - VOCs (full scan)	6010/7470 - CAM 17 Metals	6010 - Total Lead	8270 - Semi VOCs	8082 - PCBs	8081A Pesticides, Organochlorine	8151 - Herbicides, Chlorinated	TO-3	TO-14	TO-15	1.1 DFA	6010B - Arsenic	Sample Specific Notes:
01	S-1A	6-17-22	0855	G	Soil	6oz Jar													X						X	Lab Composite
02	S-1B		0905																							
03	S-1C		0915																							
04	S-2A		0925																X						X	Lab Composite
05	S-2B		0935																							
06	S-2C		0940																							
07	S-3A		0950																X						X	Lab Composite
08	S-3B		0955																							
09	S-3C		1000																							
10																										

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

-Lab Composite (6) six samples to Run

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: _____ Corr'd: _____ Therm ID No.: _____

	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Terracon	6-17-22 14:23		Sun Star Labs	6/17/22 14:23
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Ver dated 3/23/2022

5.7°C

Chain of Custody Record

T221733

Laboratory: SunStar
Address: -
Contact: -
Phone: -
PO/SO#:

Terracon

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: Eric St Michel	Site Contact:	Date:	COC No:
Terracon Consultants, Inc.	Tel/Fax:	Lab Contact:	Carrier:	1 of 1 COCs
23041 Avenida de la Carlota Ste 350	Analysis Turnaround Time			Sampler:
Laguna Hills, CA 92653	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 949-261-0051	TAT if different from Below _____			Walk-in Client:
	☒ Standard TAT			Lab Sampling:
Project Name: Manifest Development	☐ 72 Hours/3 Business Days			Job / SDG No.:
Site: Junipero Rd & McCall Blvd	☐ 48 Hours			
PO# 60223232	☐ 24 Hours			

Lab ID	Client Sample ID	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	8015 - TPH gasoline	8015 - TPH diesel	8015 - TPH oil	8015 - TPH carbon chain	8260 - BTEX & Oxygenates	8260 - VOCs (full scan)	6010/7470 - CAM 17 Metals	6010 - Total Lead	8270 - Semi VOCs	8082 - PCBs	8081A Pesticides, Organochlorine	8151 - Herbicides, Chlorinated	TO-3	TO-14	TO-15	1,1 DFA	6010B - Arsenic	Sample Specific Notes:
10	S-4A	6-17-22	1010	G	Soil	8oz Jar													X	X					X	Lab Composite
11	S-4B		1020																						
12	S-4C		1025																						
X13	S-5A		1040																X	X					X	Lab Composite
X14	S-5B		1045																						
X15	S-6C		1055																						
X16	S-6A		1100																X	X					X	Lab Composite
X17	S-6B		1105																						
X18	S-6C		1111																						

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

-Lab Composite (6) Six Samples to Run

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____ Corr'd: _____		Therm ID No.: _____	
Relinquished by:	Company: Terracon	Date/Time: 6-17-22 / 14:23	Received by:	Company: SunStar Labs	Date/Time: 6/17/22	14:23
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:	
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:	

Ver dated 3/23/2022

5.7°C

SunStar Laboratories, Inc.
Providing Quality Analytical Services Nationwide

Rev. 02 Date 07/19
Receiving Form 001

SAMPLE RECEIVING REVIEW SHEET

Batch/Work Order #: T22733

Client Name: Terracon Project: Manifee Developement

Delivered by: ☒ Client ☐ SunStar Courier ☐ GLS ☐ FedEx ☐ UPS

If Courier, Received by: Date/Time Courier Received:

Lab Received by: Paul Date/Time Lab Received: 6.17.22 1423

Total number of coolers received: 1 Thermometer ID: SC-1 Calibration due: 8/24/22

Temperature: Cooler #1 5.6	°C +/- the CF (+0.1 °C) = 5.7	°C corrected temperature	
Temperature: Cooler #2	°C +/- the CF (+0.1 °C) =	°C corrected temperature	
Temperature: Cooler #3	°C +/- the CF (+0.1 °C) =	°C corrected temperature	
Temperature criteria = ≤ 6°C (no frozen containers)	Within criteria?	☒ Yes ☐ No ☐ N/A	
If NO:			
Samples received on ice?	☐ Yes	☐ No → **Complete Non-Conformance Sheet**	
If on ice, samples received same day collected?	☐ Yes → Acceptable	☐ No → **Complete Non-Conformance Sheet**	

Custody seals intact on cooler/sample	☐ Yes	☐ No*	☒ N/A
Sample containers intact	☒ Yes	☐ No*	
Sample labels match Chain of Custody IDs	☒ Yes	☐ No*	
Total number of containers received match COC	☒ Yes	☐ No*	
Proper containers received for analyses requested on COC	☒ Yes	☐ No*	
Proper preservative indicated on COC/containers for analyses requested	☐ Yes	☐ No*	☒ N/A
Complete shipment received in good condition with correct temperatures, containers, labels, volumes preservatives and within method specified holding times	☒ **Yes**	☐ **No***	

* Complete Non-Conformance Receiving Sheet if checked

Cooler/Sample Review - Initials and date: QO 6.17.22

Comments:

(949) 297-5020 ■ www.sunstarlabs.com ■ 25712 Commercentre Drive ■ Lake Forest, CA 92630

WORK ORDER

Printed: 6/20/2022 10:11:26AM

T221733

SunStar Laboratories, Inc.

Client: Terracon - Laguna Hills	**Project Manager:** Jeff Lee
Project: Manifee Development	**Project Number:** 60227232

Report To:
Terracon - Laguna Hills
Eric St. Michel
23041 Avenida De La Carlota #350
Laguna Hills, CA 92653
Phone: (949) 261-0051
Fax: (949) 660-9732

Invoice To:
Terracon - Laguna Hills
Eric St. Michel
23041 Avenida De La Carlota #350
Laguna Hills, CA 92653
Phone :(949) 261-0051
Fax: (949) 660-9732

Date Due:	06/24/22 17:00 (5 day TAT)		
Received By:	Paul Berner	Date Received:	06/17/22 14:23
Logged In By:	Elizabeth Sprowell	Date Logged In:	06/17/22 17:10

Samples Received at: **5.7°C**

No	Yes	No
Yes	No	No
Yes	No	No
No	No	No

Analysis	Due	TAT	Expires	Comments

T221733-01 S-1A [Soil] Sampled 06/17/22 08:55 (GMT-08:00) Pacific Time (US &

[NO ANALYSES]

T221733-02 S-1 B [Soil] Sampled 06/17/22 09:05 (GMT-08:00) Pacific Time (US &

[NO ANALYSES]

T221733-03 S-1 C [Soil] Sampled 06/17/22 09:15 (GMT-08:00) Pacific Time (US &

[NO ANALYSES]

T221733-04 S-2 A [Soil] Sampled 06/17/22 09:25 (GMT-08:00) Pacific Time (US &

[NO ANALYSES]

T221733-05 S-2 B [Soil] Sampled 06/17/22 09:35 (GMT-08:00) Pacific Time (US &

[NO ANALYSES]

T221733-06 S-2 C [Soil] Sampled 06/17/22 09:40 (GMT-08:00) Pacific Time (US &

[NO ANALYSES]

T221733-07 S-3 A [Soil] Sampled 06/17/22 09:50 (GMT-08:00) Pacific Time (US &

[NO ANALYSES]

T221733

SunStar Laboratories, Inc.

Client:	**Terracon - Laguna Hills**	**Project Manager:**	**Jeff Lee**
Project:	**Manifee Development**	**Project Number:**	**60227232**

Analysis	Due	TAT	Expires	Comments

T221733-08 S-3 B [Soil] Sampled 06/17/22 09:55 (GMT-08:00) Pacific Time (US &

[NO ANALYSES]

T221733-09 S-3 C [Soil] Sampled 06/17/22 10:00 (GMT-08:00) Pacific Time (US &

[NO ANALYSES]

T221733-10 S-4 A [Soil] Sampled 06/17/22 10:10 (GMT-08:00) Pacific Time (US &

[NO ANALYSES]

T221733-11 S-4 B [Soil] Sampled 06/17/22 10:20 (GMT-08:00) Pacific Time (US &

[NO ANALYSES]

T221733-12 S-4 C [Soil] Sampled 06/17/22 10:25 (GMT-08:00) Pacific Time (US &

[NO ANALYSES]

T221733-13 S-5 A [Soil] Sampled 06/17/22 10:40 (GMT-08:00) Pacific Time (US &

[NO ANALYSES]

T221733-14 S-5 B [Soil] Sampled 06/17/22 10:45 (GMT-08:00) Pacific Time (US &

[NO ANALYSES]

T221733-15 S-5 C [Soil] Sampled 06/17/22 10:55 (GMT-08:00) Pacific Time (US &

[NO ANALYSES]

T221733-16 S-6 A [Soil] Sampled 06/17/22 11:00 (GMT-08:00) Pacific Time (US &

[NO ANALYSES]

T221733-17 S-6 B [Soil] Sampled 06/17/22 11:05 (GMT-08:00) Pacific Time (US &

[NO ANALYSES]

T221733-18 S-6 C [Soil] Sampled 06/17/22 11:11 (GMT-08:00) Pacific Time (US &

[NO ANALYSES]

T221733

SunStar Laboratories, Inc.

Client:	**Terracon - Laguna Hills**	**Project Manager:**	**Jeff Lee**
Project:	**Manifee Development**	**Project Number:**	**60227232**

Analysis	Due	TAT	Expires	Comments
T221733-19 COMP 3:1 (S-1A - S-1C) [Soil] Sampled 06/17/22 08:55 (GMT-08:00) Pacific Time (US &				**COMP- 4:1 S1A, S1B, S1C**
8081 Pesticides	06/24/22 15:00	5	07/01/22 08:55	
6010 Individual Metals	06/24/22 15:00	5	12/14/22 08:55	+As
T221733-20 COMP 3:1 (S-2A - S-2C) [Soil] Sampled 06/17/22 09:25 (GMT-08:00) Pacific Time (US &				**COMP- 4:1 S2A, S2B, S2C**
8081 Pesticides	06/24/22 15:00	5	07/01/22 09:25	
6010 Individual Metals	06/24/22 15:00	5	12/14/22 09:25	+As
T221733-21 COMP 3:1 (S-3A - S-3C) [Soil] Sampled 06/17/22 09:50 (GMT-08:00) Pacific Time (US &				**COMP- 4:1 S3A, S3B, S3C**
8081 Pesticides	06/24/22 15:00	5	07/01/22 09:50	
6010 Individual Metals	06/24/22 15:00	5	12/14/22 09:50	+As
T221733-22 COMP 3:1 (S-4A - S-4C) [Soil] Sampled 06/17/22 10:10 (GMT-08:00) Pacific Time (US &				**COMP- 4:1 S4A, S4B, S4C**
8081 Pesticides	06/24/22 15:00	5	07/01/22 10:10	
6010 Individual Metals	06/24/22 15:00	5	12/14/22 10:10	+As
T221733-23 COMP 3:1 (S-5A - S-5C) [Soil] Sampled 06/17/22 10:40 (GMT-08:00) Pacific Time (US &				**COMP- 4:1 S5A, S5B, S5C**
8081 Pesticides	06/24/22 15:00	5	07/01/22 10:40	
6010 Individual Metals	06/24/22 15:00	5	12/14/22 10:40	+As
T221733-24 COMP 3:1 (S-6A - S-6C) [Soil] Sampled 06/17/22 11:00 (GMT-08:00) Pacific Time (US &				**COMP- 4:1 S6A, S6B, S6C**
8081 Pesticides	06/24/22 15:00	5	07/01/22 11:00	
6010 Individual Metals	06/24/22 15:00	5	12/14/22 11:00	+As

Reviewed By

Date

APPENDIX E
ENVIRONMENTAL DATA RESSOURCES INC. REPORT

Junipero Road and McCall Blvd
Junipero Rd
Menifee, CA 92585

Inquiry Number: 7013948.2s
June 09, 2022

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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GEOCHECK ADDENDUM

Physical Setting Source Addendum	A-1
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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E1527-21), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

JUNIPERO RD
MENIFEE, CA 92585

COORDINATES

Latitude (North):	33.7240790 - 33ˆ 43' 26.68''
Longitude (West):	117.1562410 - 117ˆ 9' 22.46''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	485524.7
UTM Y (Meters):	3731380.5
Elevation:	1461 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	12015913 ROMOLAND, CA
Version Date:	2018

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20140530
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
JUNIPERO RD
MENIFEE, CA 92585

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
1	MENIFEE VALLEY RANCH	MCCALL BOULEVARD/MEN	ENVIROSTOR, SCH	Higher	659, 0.125, SE
2	MCCALL MESA K-8 SCHO	MCCALL BOULEVARD/JUN	ENVIROSTOR, SCH	Higher	661, 0.125, SSW
3	ELEMENTARY SCHOOL #1	CHAMBERS AVENUE/ANTE	ENVIROSTOR, SCH	Higher	4498, 0.852, WSW
4	PROPOSED ELEMENTARY	ROUSE ROAD/SHERMAN R	ENVIROSTOR, SCH	Higher	5193, 0.984, West

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Lists of Federal NPL (Superfund) sites

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Lists of Federal Delisted NPL sites

Delisted NPL ---------- National Priority List Deletions

Lists of Federal sites subject to CERCLA removals and CERCLA orders

FEDERAL FACILITY ---------- Federal Facility Site Information listing
SEMS ---------- Superfund Enterprise Management System

Lists of Federal CERCLA sites with NFRAP

SEMS-ARCHIVE ---------- Superfund Enterprise Management System Archive

Lists of Federal RCRA facilities undergoing Corrective Action

CORRACTS ---------- Corrective Action Report

Lists of Federal RCRA TSD facilities

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

Lists of Federal RCRA generators

RCRA-LQG ---------- RCRA - Large Quantity Generators
RCRA-SQG ---------- RCRA - Small Quantity Generators
RCRA-VSQG ---------- RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

Federal institutional controls / engineering controls registries

LUCIS ---------- Land Use Control Information System

US ENG CONTROLS ..... Engineering Controls Sites List
US INST CONTROLS ..... Institutional Controls Sites List

Federal ERNS list

ERNS ..... Emergency Response Notification System

Lists of state- and tribal (Superfund) equivalent sites

RESPONSE ..... State Response Sites

Lists of state and tribal landfills and solid waste disposal facilities

SWF/LF ..... Solid Waste Information System

Lists of state and tribal leaking storage tanks

LUST ..... Geotracker's Leaking Underground Fuel Tank Report
INDIAN LUST ..... Leaking Underground Storage Tanks on Indian Land
CPS-SLIC ..... Statewide SLIC Cases

Lists of state and tribal registered storage tanks

FEMA UST ..... Underground Storage Tank Listing
UST ..... Active UST Facilities
AST ..... Aboveground Petroleum Storage Tank Facilities
INDIAN UST ..... Underground Storage Tanks on Indian Land

Lists of state and tribal voluntary cleanup sites

VCP ..... Voluntary Cleanup Program Properties
INDIAN VCP ..... Voluntary Cleanup Priority Listing

Lists of state and tribal brownfield sites

BROWNFIELDS ..... Considered Brownfieds Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT ..... Waste Management Unit Database
SWRCY ..... Recycler Database
HAULERS ..... Registered Waste Tire Haulers Listing
INDIAN ODI ..... Report on the Status of Open Dumps on Indian Lands
ODI ..... Open Dump Inventory
DEBRIS REGION 9 ..... Torres Martinez Reservation Illegal Dump Site Locations
IHS OPEN DUMPS ..... Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL ..... Delisted National Clandestine Laboratory Register

HIST Cal-Sites	Historical Calsites Database
CDL	Clandestine Drug Labs
Toxic Pits	Toxic Pits Cleanup Act Sites
CERS HAZ WASTE	CERS HAZ WASTE
US CDL	National Clandestine Laboratory Register
AQUEOUS FOAM	Former Fire Training Facility Assessments Listing
PFAS	PFAS Contamination Site Location Listing

Local Lists of Registered Storage Tanks

SWEEPS UST	SWEEPS UST Listing
HIST UST	Hazardous Substance Storage Container Database
CA FID UST	Facility Inventory Database
CERS TANKS	California Environmental Reporting System (CERS) Tanks

Local Land Records

LIENS	Environmental Liens Listing
LIENS 2	CERCLA Lien Information
DEED	Deed Restriction Listing

Records of Emergency Release Reports

HMIRS	Hazardous Materials Information Reporting System
CHMIRS	California Hazardous Material Incident Report System
LDS	Land Disposal Sites Listing
MCS	Military Cleanup Sites Listing
SPILLS 90	SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR	RCRA - Non Generators / No Longer Regulated
FUDS	Formerly Used Defense Sites
DOD	Department of Defense Sites
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR	Financial Assurance Information
EPA WATCH LIST	EPA WATCH LIST
2020 COR ACTION	2020 Corrective Action Program List
TSCA	Toxic Substances Control Act
TRIS	Toxic Chemical Release Inventory System
SSTS	Section 7 Tracking Systems
ROD	Records Of Decision
RMP	Risk Management Plans
RAATS	RCRA Administrative Action Tracking System
PRP	Potentially Responsible Parties
PADS	PCB Activity Database System
ICIS	Integrated Compliance Information System
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS	Material Licensing Tracking System
COAL ASH DOE	Steam-Electric Plant Operation Data
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER	PCB Transformer Registration Database
RADINFO	Radiation Information Database
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing

DOT OPS	Incident and Accident Data
CONSENT	Superfund (CERCLA) Consent Decrees
INDIAN RESERV	Indian Reservations
FUSRAP	Formerly Utilized Sites Remedial Action Program
UMTRA	Uranium Mill Tailings Sites
LEAD SMELTERS	Lead Smelter Sites
US AIRS	Aerometric Information Retrieval System Facility Subsystem
US MINES	Mines Master Index File
ABANDONED MINES	Abandoned Mines
FINDS	Facility Index System/Facility Registry System
DOCKET HWC	Hazardous Waste Compliance Docket Listing
ECHO	Enforcement & Compliance History Information
UXO	Unexploded Ordnance Sites
FUELS PROGRAM	EPA Fuels Program Registered Listing
CA BOND EXP. PLAN	Bond Expenditure Plan
Cortese	"Cortese" Hazardous Waste & Substances Sites List
CUPA Listings	CUPA Resources List
DRYCLEANERS	Cleaner Facilities
EMI	Emissions Inventory Data
ENF	Enforcement Action Listing
Financial Assurance	Financial Assurance Information Listing
HAZNET	Facility and Manifest Data
ICE	ICE
HIST CORTESE	Hazardous Waste & Substance Site List
HWP	EnviroStor Permitted Facilities Listing
HWT	Registered Hazardous Waste Transporter Database
MINES	Mines Site Location Listing
MWMP	Medical Waste Management Program Listing
NPDES	NPDES Permits Listing
PEST LIC	Pesticide Regulation Licenses Listing
PROC	Certified Processors Database
Notify 65	Proposition 65 Records
UIC	UIC Listing
UIC GEO	UIC GEO (GEOTRACKER)
WASTEWATER PITS	Oil Wastewater Pits Listing
WDS	Waste Discharge System
WIP	Well Investigation Program Case List
MILITARY PRIV SITES	MILITARY PRIV SITES (GEOTRACKER)
PROJECT	PROJECT (GEOTRACKER)
WDR	Waste Discharge Requirements Listing
CIWQS	California Integrated Water Quality System
CERS	CERS
NON-CASE INFO	NON-CASE INFO (GEOTRACKER)
OTHER OIL GAS	OTHER OIL & GAS (GEOTRACKER)
PROD WATER PONDS	PROD WATER PONDS (GEOTRACKER)
SAMPLING POINT	SAMPLING POINT (GEOTRACKER)
WELL STIM PROJ	Well Stimulation Project (GEOTRACKER)
MINES MRDS	Mineral Resources Data System
HWTS	Hazardous Waste Tracking System

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	EDR Proprietary Manufactured Gas Plants

EXECUTIVE SUMMARY

EDR Hist Auto---------- EDR Exclusive Historical Auto Stations
EDR Hist Cleaner---------- EDR Exclusive Historical Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF---------- Recovered Government Archive Solid Waste Facilities List
RGA LUST---------- Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Lists of state- and tribal hazardous waste facilities

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

A review of the ENVIROSTOR list, as provided by EDR, and dated 01/24/2022 has revealed that there are 4 ENVIROSTOR sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MENIFEE VALLEY RANCH Facility Id: 33010076 Status: No Further Action	***MCCALL BOULEVARD/MEN***	***SE 0 - 1/8 (0.125 mi.)***	***1***	***9***
MCCALL MESA K-8 SCHO Facility Id: 33010066 Status: No Further Action	***MCCALL BOULEVARD/JUN***	***SSW 1/8 - 1/4 (0.125 mi.)***	***2***	***11***
ELEMENTARY SCHOOL #1 Facility Id: 60000777	***CHAMBERS AVENUE/ANTE***	***WSW 1/2 - 1 (0.852 mi.)***	***3***	***14***

Status: No Action Required

PROPOSED ELEMENTARY	***ROUSE ROAD/SHERMAN R***	***W 1/2 - 1 (0.984 mi.)***	***4***	***17***
Facility Id: 60001068 Status: No Action Required				

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Hazardous waste / Contaminated Sites

SCH: This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category. depending on the level of threat to public health and safety or the. environment they pose.

A review of the SCH list, as provided by EDR, and dated 01/24/2022 has revealed that there are 2 SCH sites within approximately 0.25 miles of the target property.

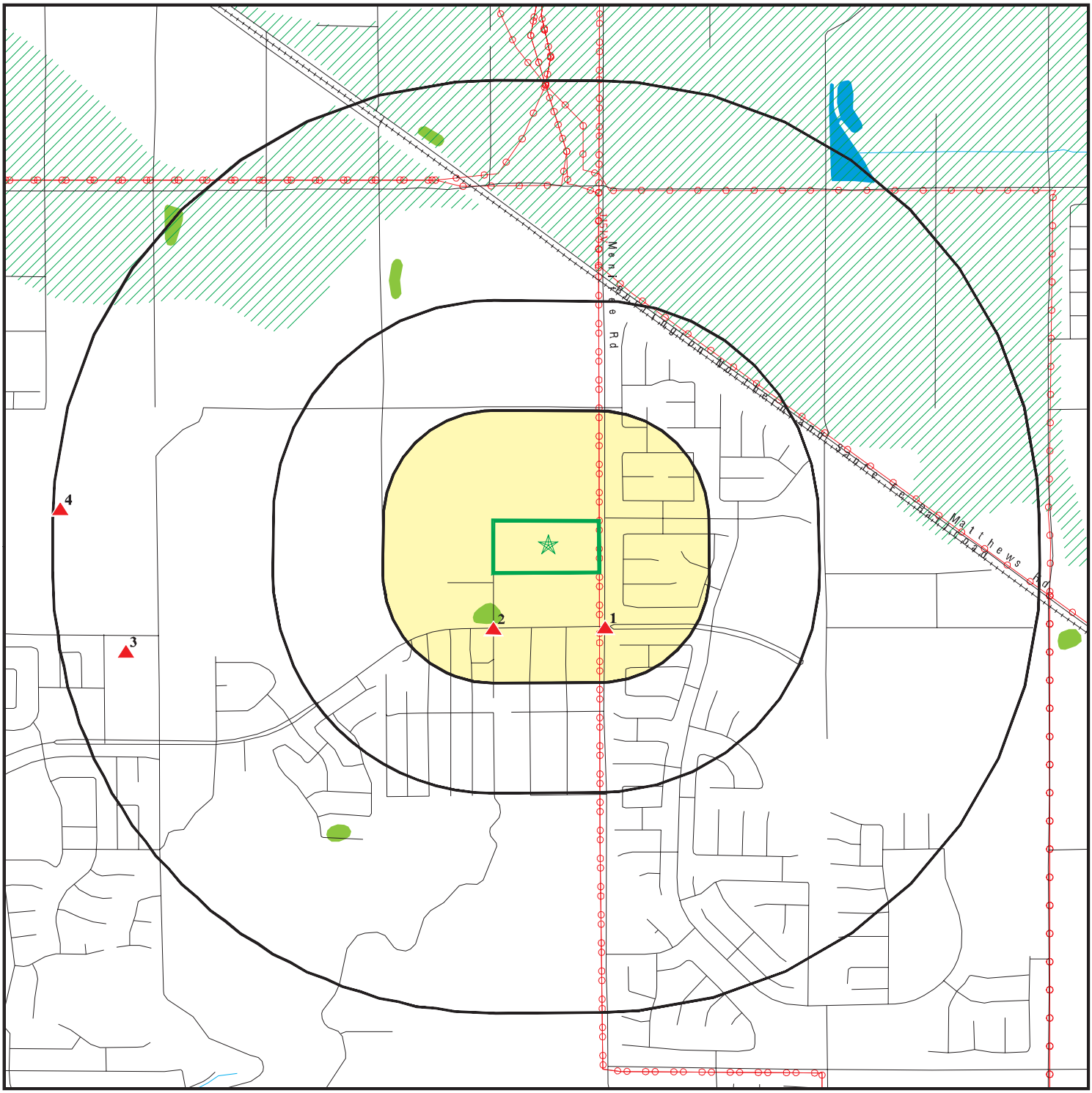
Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MENIFEE VALLEY RANCH Facility Id: 33010076 Status: No Further Action	***MCCALL BOULEVARD/MEN***	***SE 0 - 1/8 (0.125 mi.)***	***1***	***9***
MCCALL MESA K-8 SCHO Facility Id: 33010066 Status: No Further Action	***MCCALL BOULEVARD/JUN***	***SSW 1/8 - 1/4 (0.125 mi.)***	***2***	***11***

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 1 records.

Site Name	Database(s)
	CDL

OVERVIEW MAP - 7013948.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites

0 1/4 1/2 1 Miles

Indian Reservations BIA

Power transmission lines

Special Flood Hazard Area (1%)

0.2% Annual Chance Flood Hazard

National Wetland Inventory

State Wetlands

Areas of Concern

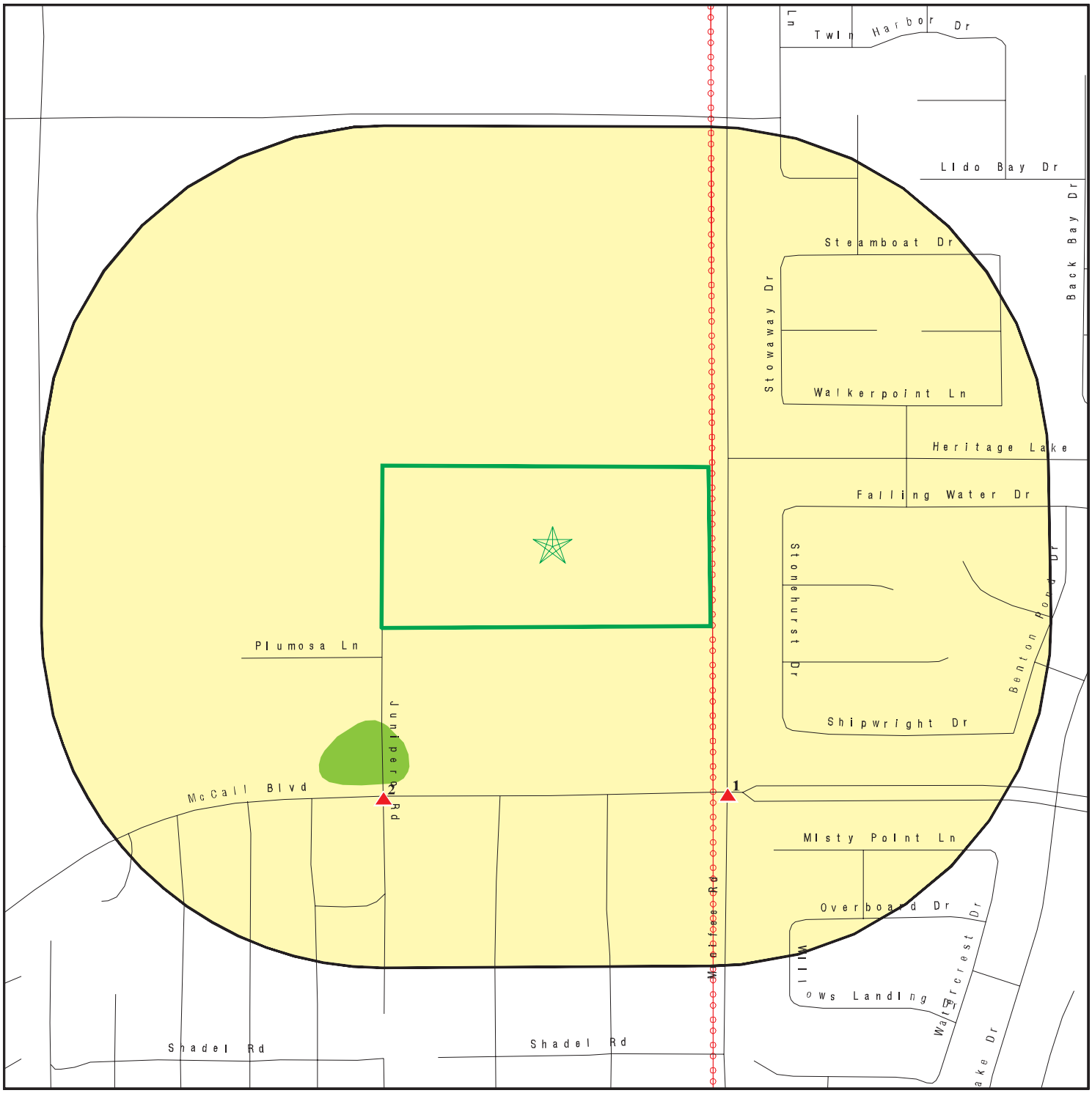
N

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Junipero Road and McCall Blvd ADDRESS: Junipero Rd Menifee CA 92585 LAT/LONG: 33.724079 / 117.156241	CLIENT: Lilburn Corporation CONTACT: Frank Amendola INQUIRY #: 7013948.2s DATE: June 09, 2022 7:05 pm

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DETAIL MAP - 7013948.2S



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Junipero Road and McCall Blvd	CLIENT: Lilburn Corporation
ADDRESS: Junipero Rd Menifee CA 92585	CONTACT: Frank Amendola
LAT/LONG: 33.724079 / 117.156241	INQUIRY #: 7013948.2s DATE: June 09, 2022 7:06 pm

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Lists of Federal NPL (Superfund) sites								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	1.000		0	0	0	0	NR	0
Lists of Federal Delisted NPL sites								
Delisted NPL	1.000		0	0	0	0	NR	0
Lists of Federal sites subject to CERCLA removals and CERCLA orders								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Lists of Federal CERCLA sites with NFRAP								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA facilities undergoing Corrective Action								
CORRACTS	1.000		0	0	0	0	NR	0
Lists of Federal RCRA TSD facilities								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA generators								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-VSQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROLS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	0.001		0	NR	NR	NR	NR	0
Lists of state- and tribal (Superfund) equivalent sites								
RESPONSE	1.000		0	0	0	0	NR	0
Lists of state- and tribal hazardous waste facilities								
ENVIROSTOR	1.000		1	1	0	2	NR	4
Lists of state and tribal landfills and solid waste disposal facilities								
SWF/LF	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
Lists of state and tribal leaking storage tanks								
LUST	0.500		0	0	0	NR	NR	0
INDIAN LUST	0.500		0	0	0	NR	NR	0
CPS-SLIC	0.500		0	0	0	NR	NR	0
Lists of state and tribal registered storage tanks								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
Lists of state and tribal voluntary cleanup sites								
VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
Lists of state and tribal brownfield sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	0.001		0	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	0.001		0	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		1	1	NR	NR	NR	2
CDL	0.001		0	NR	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
CERS HAZ WASTE	0.250		0	0	NR	NR	NR	0
US CDL	0.001		0	NR	NR	NR	NR	0
AQUEOUS FOAM	TP		NR	NR	NR	NR	NR	0
PFAS	0.500		0	0	0	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		0	0	NR	NR	NR	0
HIST UST	0.250		0	0	NR	NR	NR	0
CA FID UST	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
CERS TANKS	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS	0.001		0	NR	NR	NR	NR	0
LIENS 2	0.001		0	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0
CHMIRS	0.001		0	NR	NR	NR	NR	0
LDS	0.001		0	NR	NR	NR	NR	0
MCS	0.001		0	NR	NR	NR	NR	0
SPILLS 90	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	0.001		0	NR	NR	NR	NR	0
TRIS	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	0.001		0	NR	NR	NR	NR	0
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
ECHO	0.001		0	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
Cortese	0.500		0	0	0	NR	NR	0
CUPA Listings	0.250		0	0	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
EMI	0.001		0	NR	NR	NR	NR	0
ENF	0.001		0	NR	NR	NR	NR	0
Financial Assurance	0.001		0	NR	NR	NR	NR	0
HAZNET	0.001		0	NR	NR	NR	NR	0
ICE	0.001		0	NR	NR	NR	NR	0
HIST CORTESE	0.500		0	0	0	NR	NR	0
HWP	1.000		0	0	0	0	NR	0
HWT	0.250		0	0	NR	NR	NR	0
MINES	0.250		0	0	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
NPDES	0.001		0	NR	NR	NR	NR	0
PEST LIC	0.001		0	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
UIC	0.001		0	NR	NR	NR	NR	0
UIC GEO	0.001		0	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	0.001		0	NR	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
MILITARY PRIV SITES	0.001		0	NR	NR	NR	NR	0
PROJECT	0.001		0	NR	NR	NR	NR	0
WDR	0.001		0	NR	NR	NR	NR	0
CIWQS	0.001		0	NR	NR	NR	NR	0
CERS	0.001		0	NR	NR	NR	NR	0
NON-CASE INFO	0.001		0	NR	NR	NR	NR	0
OTHER OIL GAS	0.001		0	NR	NR	NR	NR	0
PROD WATER PONDS	0.001		0	NR	NR	NR	NR	0
SAMPLING POINT	0.001		0	NR	NR	NR	NR	0
WELL STIM PROJ	0.001		0	NR	NR	NR	NR	0
MINES MRDS	0.001		0	NR	NR	NR	NR	0
HWTS	TP		NR	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	0.001		0	NR	NR	NR	NR	0
RGA LUST	0.001		0	NR	NR	NR	NR	0
- Totals --		0	2	2	0	2	0	6

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

1
SE
< 1/8
0.125 mi.
659 ft.

MENIFEE VALLEY RANCH SCHOOL NO. 1
MCCALL BOULEVARD/MENIFEE LOOP W
ROMOLAND, CA 92585

ENVIROSTOR SCH

S106044339
N/A

Relative:
Higher

Actual:
1468 ft.

ENVIROSTOR:

Name:	MENIFEE VALLEY RANCH SCHOOL NO. 1
Address:	MCCALL BOULEVARD/MENIFEE LOOP W
City,State,Zip:	ROMOLAND, CA 92585
Facility ID:	33010076
Status:	No Further Action
Status Date:	12/10/2004
Site Code:	404479
Site Type:	School Investigation
Site Type Detailed:	School
Acres:	15
NPL:	NO
Regulatory Agencies:	DTSC
Lead Agency:	DTSC
Program Manager:	Amit Pathak
Supervisor:	Shahir Haddad
Division Branch:	Southern California Schools & Brownfields Outreach
Assembly:	67
Senate:	23
Special Program:	Not reported
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	School District
Latitude:	33.7214
Longitude:	-117.1540
APN:	NONE SPECIFIED
Past Use:	AGRICULTURAL - ROW CROPS
Potential COC:	Arsenic DDD DDE DDT
Confirmed COC:	NONE SPECIFIED
Potential Description:	SOIL
Alias Name:	MENIFEE VALLEY RANCH SCHOOL NO. 1
Alias Type:	Alternate Name
Alias Name:	ROMOLAND ELEMENTARY SCHOOL DISTRICT
Alias Type:	Alternate Name
Alias Name:	ROMOLAND SD-PRPSD MNIFEE VLY RNCH SCL #1
Alias Type:	Alternate Name
Alias Name:	404479
Alias Type:	Project Code (Site Code)
Alias Name:	33010076
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Cost Recovery Closeout Memo
Completed Date:	12/10/2004
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Environmental Oversight Agreement
Completed Date:	09/18/2003
Comments:	Not reported

MENIFEE VALLEY RANCH SCHOOL NO. 1 (Continued) **S106044339**

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Preliminary Endangerment Assessment Report
Completed Date:	09/24/2004
Comments:	Not reported

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Preliminary Endangerment Assessment Workplan
Completed Date:	04/21/2004
Comments:	Not reported

Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

SCH:

Name:	MENIFEE VALLEY RANCH SCHOOL NO. 1
Address:	MCCALL BOULEVARD/MENIFEE LOOP W
City,State,Zip:	ROMOLAND, CA 92585
Facility ID:	33010076
Site Type:	School Investigation
Site Type Detail:	School
Site Mgmt. Req.:	NONE SPECIFIED
Acres:	15
National Priorities List:	NO
Cleanup Oversight Agencies:	DTSC
Lead Agency:	DTSC
Lead Agency Description:	* DTSC
Project Manager:	Amit Pathak
Supervisor:	Shahir Haddad
Division Branch:	Southern California Schools & Brownfields Outreach
Site Code:	404479
Assembly:	67
Senate:	23
Special Program Status:	Not reported
Status:	No Further Action
Status Date:	12/10/2004
Restricted Use:	NO
Funding:	School District
Latitude:	33.7214
Longitude:	-117.1540
APN:	NONE SPECIFIED
Past Use:	AGRICULTURAL - ROW CROPS
Potential COC:	Arsenic, DDD, DDE, DDT
Confirmed COC:	NONE SPECIFIED
Potential Description:	SOIL
Alias Name:	MENIFEE VALLEY RANCH SCHOOL NO. 1
Alias Type:	Alternate Name
Alias Name:	ROMOLAND ELEMENTARY SCHOOL DISTRICT

MENIFEE VALLEY RANCH SCHOOL NO. 1 (Continued) **S106044339**

Alias Type: Alternate Name
Alias Name: ROMOLAND SD-PRPSD MNIFEE VLY RNCH SCL #1
Alias Type: Alternate Name
Alias Name: 404479
Alias Type: Project Code (Site Code)
Alias Name: 33010076
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Cost Recovery Closeout Memo
Completed Date: 12/10/2004
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Environmental Oversight Agreement
Completed Date: 09/18/2003
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 09/24/2004
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Workplan
Completed Date: 04/21/2004
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

2
SSW
1/8-1/4
0.125 mi.
661 ft.

MCCALL MESA K-8 SCHOOL **ENVIROSTOR** **S105628773**
MCCALL BOULEVARD/JUNIPERO ROAD **SCH** **N/A**
ROMOLAND, CA 92586

Relative:
Higher

Actual:
1497 ft.

ENVIROSTOR:
Name: MCCALL MESA K-8 SCHOOL
Address: MCCALL BOULEVARD/JUNIPERO ROAD
City,State,Zip: ROMOLAND, CA 92586
Facility ID: 33010066
Status: No Further Action
Status Date: 04/18/2003
Site Code: 404388
Site Type: School Investigation

MCCALL MESA K-8 SCHOOL (Continued) **S105628773**

Site Type Detailed: School
Acres: 30.04
NPL: NO
Regulatory Agencies: SMBRP
Lead Agency: SMBRP
Program Manager: Not reported
Supervisor: Javier Hinojosa
Division Branch: Southern California Schools & Brownfields Outreach
Assembly: 67
Senate: 23
Special Program: Not reported
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: School District
Latitude: 33.71149
Longitude: -117.1956
APN: NONE SPECIFIED
Past Use: AGRICULTURAL - ROW CROPS
Potential COC: Lead Zinc
Confirmed COC: 30013-NO 30594-NO
Potential Description: SOIL, SV
Alias Name: MCCALL MESA K-8 SCHOOL
Alias Type: Alternate Name
Alias Name: ROMOLAND ELEMENTARY SCHOOL DISTRICT
Alias Type: Alternate Name
Alias Name: ROMOLAND SD-MCCALL-MESA K-8
Alias Type: Alternate Name
Alias Name: 404388
Alias Type: Project Code (Site Code)
Alias Name: 33010066
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Cost Recovery Closeout Memo
Completed Date: 04/18/2003
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Environmental Oversight Agreement
Completed Date: 10/28/2002
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 04/17/2003
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Phase 1
Completed Date: 09/27/2002
Comments: Not reported

Completed Area Name: PROJECT WIDE

MCCALL MESA K-8 SCHOOL (Continued) **S105628773**

Completed Sub Area Name:	Not reported
Completed Document Type:	Technical Report
Completed Date:	12/24/2002
Comments:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

SCH:

Name:	MCCALL MESA K-8 SCHOOL
Address:	MCCALL BOULEVARD/JUNIPERO ROAD
City,State,Zip:	ROMOLAND, CA 92586
Facility ID:	33010066
Site Type:	School Investigation
Site Type Detail:	School
Site Mgmt. Req.:	NONE SPECIFIED
Acres:	30.04
National Priorities List:	NO
Cleanup Oversight Agencies:	SMBRP
Lead Agency:	SMBRP
Lead Agency Description:	DTSC - Site Cleanup Program
Project Manager:	Not reported
Supervisor:	Javier Hinojosa
Division Branch:	Southern California Schools & Brownfields Outreach
Site Code:	404388
Assembly:	67
Senate:	23
Special Program Status:	Not reported
Status:	No Further Action
Status Date:	04/18/2003
Restricted Use:	NO
Funding:	School District
Latitude:	33.71149
Longitude:	-117.1956
APN:	NONE SPECIFIED
Past Use:	AGRICULTURAL - ROW CROPS
Potential COC:	Lead, Zinc
Confirmed COC:	30013-NO, 30594-NO
Potential Description:	SOIL, SV
Alias Name:	MCCALL MESA K-8 SCHOOL
Alias Type:	Alternate Name
Alias Name:	ROMOLAND ELEMENTARY SCHOOL DISTRICT
Alias Type:	Alternate Name
Alias Name:	ROMOLAND SD-MCCALL-MESA K-8
Alias Type:	Alternate Name
Alias Name:	404388
Alias Type:	Project Code (Site Code)
Alias Name:	33010066
Alias Type:	Envirostor ID Number

MCCALL MESA K-8 SCHOOL (Continued) **S105628773**

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Cost Recovery Closeout Memo
Completed Date:	04/18/2003
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Environmental Oversight Agreement
Completed Date:	10/28/2002
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Preliminary Endangerment Assessment Report
Completed Date:	04/17/2003
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Phase 1
Completed Date:	09/27/2002
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Technical Report
Completed Date:	12/24/2002
Comments:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

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3 **ELEMENTARY SCHOOL #13** **ENVIROSTOR** **S118757164**
WSW **CHAMBERS AVENUE/ANTELOPE ROAD** **SCH** **N/A**
1/2-1 **SUN CITY, CA 92585**
0.852 mi.
4498 ft.

Relative:
Higher

Actual:
1494 ft.

ENVIROSTOR:

Name:	ELEMENTARY SCHOOL #13
Address:	CHAMBERS AVENUE/ANTELOPE ROAD
City,State,Zip:	SUN CITY, CA 92585
Facility ID:	60000777
Status:	No Action Required
Status Date:	03/22/2008
Site Code:	404763
Site Type:	School Investigation
Site Type Detailed:	School

ELEMENTARY SCHOOL #13 (Continued) **S118757164**

Acres: 12
NPL: NO
Regulatory Agencies: SMBRP
Lead Agency: SMBRP
Program Manager: Angela Garcia
Supervisor: Shahir Haddad
Division Branch: Southern California Schools & Brownfields Outreach
Assembly: 67
Senate: 23
Special Program: Not reported
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: School District
Latitude: 33.7206
Longitude: -117.1729
APN: NONE SPECIFIED
Past Use: NONE
Potential COC: DDD DDE DDT
Confirmed COC: 30006-NO 30007-NO 30008-NO
Potential Description: SOIL
Alias Name: 404763
Alias Type: Project Code (Site Code)
Alias Name: 60000777
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Cost Recovery Closeout Memo
Completed Date: 02/27/2008
Comments: DTSC prepared Cost Recovery Unit project close out Memorandum

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Phase 1
Completed Date: 02/04/2008
Comments: DTSC issued No Action determination based on the Phase I report

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

SCH:

Name: ELEMENTARY SCHOOL #13
Address: CHAMBERS AVENUE/ANTELOPE ROAD
City,State,Zip: SUN CITY, CA 92585
Facility ID: 60000777
Site Type: School Investigation
Site Type Detail: School
Site Mgmt. Req.: NONE SPECIFIED

ELEMENTARY SCHOOL #13 (Continued) **S118757164**

Acres:	12
National Priorities List:	NO
Cleanup Oversight Agencies:	SMBRP
Lead Agency:	SMBRP
Lead Agency Description:	DTSC - Site Cleanup Program
Project Manager:	Angela Garcia
Supervisor:	Shahir Haddad
Division Branch:	Southern California Schools & Brownfields Outreach
Site Code:	404763
Assembly:	67
Senate:	23
Special Program Status:	Not reported
Status:	No Action Required
Status Date:	03/22/2008
Restricted Use:	NO
Funding:	School District
Latitude:	33.7206
Longitude:	-117.1729
APN:	NONE SPECIFIED
Past Use:	NONE
Potential COC:	DDD, DDE, DDT
Confirmed COC:	30006-NO, 30007-NO, 30008-NO
Potential Description:	SOIL
Alias Name:	404763
Alias Type:	Project Code (Site Code)
Alias Name:	60000777
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Cost Recovery Closeout Memo
Completed Date:	02/27/2008
Comments:	DTSC prepared Cost Recovery Unit project close out Memorandum
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Phase 1
Completed Date:	02/04/2008
Comments:	DTSC issued No Action determination based on the Phase I report
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

4
West
1/2-1
0.984 mi.
5193 ft.

PROPOSED ELEMENTARY SCHOOL NO. 15
ROUSE ROAD/SHERMAN ROAD
MENIFEE, CA 92585

ENVIROSTOR
SCH

S118757200
N/A

Relative:
Higher

Actual:
1470 ft.

ENVIROSTOR:

Name:	PROPOSED ELEMENTARY SCHOOL NO. 15
Address:	ROUSE ROAD/SHERMAN ROAD
City,State,Zip:	MENIFEE, CA 92585
Facility ID:	60001068
Status:	No Action Required
Status Date:	05/11/2009
Site Code:	404827
Site Type:	School Investigation
Site Type Detailed:	School
Acres:	12
NPL:	NO
Regulatory Agencies:	SMBRP
Lead Agency:	SMBRP
Program Manager:	Not reported
Supervisor:	Shahir Haddad
Division Branch:	Southern California Schools & Brownfields Outreach
Assembly:	67
Senate:	23
Special Program:	Not reported
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	School District
Latitude:	33.7253
Longitude:	-117.1755
APN:	NONE SPECIFIED
Past Use:	NONE
Potential COC:	Under Investigation
Confirmed COC:	NONE SPECIFIED
Potential Description:	UE
Alias Name:	404827
Alias Type:	Project Code (Site Code)
Alias Name:	60001068
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Cost Recovery Closeout Memo
Completed Date:	05/07/2009
Comments:	DTSC prepared a project close out cost recovery unit memorandum
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Phase 1
Completed Date:	05/07/2009
Comments:	Approval of Phase I ESA w/ NA determination.
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported

PROPOSED ELEMENTARY SCHOOL NO. 15 (Continued) **S118757200**

Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

SCH:

Name: PROPOSED ELEMENTARY SCHOOL NO. 15
Address: ROUSE ROAD/SHERMAN ROAD
City,State,Zip: MENIFEE, CA 92585
Facility ID: 60001068
Site Type: School Investigation
Site Type Detail: School
Site Mgmt. Req.: NONE SPECIFIED
Acres: 12
National Priorities List: NO
Cleanup Oversight Agencies: SMBRP
Lead Agency: SMBRP
Lead Agency Description: DTSC - Site Cleanup Program
Project Manager: Not reported
Supervisor: Shahir Haddad
Division Branch: Southern California Schools & Brownfields Outreach
Site Code: 404827
Assembly: 67
Senate: 23
Special Program Status: Not reported
Status: No Action Required
Status Date: 05/11/2009
Restricted Use: NO
Funding: School District
Latitude: 33.7253
Longitude: -117.1755
APN: NONE SPECIFIED
Past Use: NONE
Potential COC: Under Investigation
Confirmed COC: NONE SPECIFIED
Potential Description: UE
Alias Name: 404827
Alias Type: Project Code (Site Code)
Alias Name: 60001068
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Cost Recovery Closeout Memo
Completed Date: 05/07/2009
Comments: DTSC prepared a project close out cost recovery unit memorandum

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Phase 1
Completed Date: 05/07/2009
Comments: Approval of Phase I ESA w/ NA determination.

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported

PROPOSED ELEMENTARY SCHOOL NO. 15 (Continued) **S118757200**

Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

Count: 1 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
SUN CITY	S107532194		27860 JUNIPERO RD	92585	CDL

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Lists of Federal NPL (Superfund) sites

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 04/27/2022
Date Data Arrived at EDR: 05/05/2022
Date Made Active in Reports: 05/31/2022
Number of Days to Update: 26

Source: EPA
Telephone: N/A
Last EDR Contact: 06/01/2022
Next Scheduled EDR Contact: 07/11/2022
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 3
Telephone 215-814-5418

EPA Region 4
Telephone 404-562-8033

EPA Region 5
Telephone 312-886-6686

EPA Region 10
Telephone 206-553-8665

EPA Region 6
Telephone: 214-655-6659

EPA Region 7
Telephone: 913-551-7247

EPA Region 8
Telephone: 303-312-6774

EPA Region 9
Telephone: 415-947-4246

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 04/27/2022
Date Data Arrived at EDR: 05/05/2022
Date Made Active in Reports: 05/31/2022
Number of Days to Update: 26

Source: EPA
Telephone: N/A
Last EDR Contact: 06/01/2022
Next Scheduled EDR Contact: 07/11/2022
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Lists of Federal Delisted NPL sites

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 04/27/2022
Date Data Arrived at EDR: 05/05/2022
Date Made Active in Reports: 05/31/2022
Number of Days to Update: 26

Source: EPA
Telephone: N/A
Last EDR Contact: 06/01/2022
Next Scheduled EDR Contact: 07/11/2022
Data Release Frequency: Quarterly

Lists of Federal sites subject to CERCLA removals and CERCLA orders

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 05/25/2021
Date Data Arrived at EDR: 06/24/2021
Date Made Active in Reports: 09/20/2021
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 04/01/2022
Next Scheduled EDR Contact: 07/11/2022
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 04/27/2022
Date Data Arrived at EDR: 05/05/2022
Date Made Active in Reports: 05/31/2022
Number of Days to Update: 26

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 06/01/2022
Next Scheduled EDR Contact: 07/25/2022
Data Release Frequency: Quarterly

Lists of Federal CERCLA sites with NFRAP

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 04/27/2022
Date Data Arrived at EDR: 05/05/2022
Date Made Active in Reports: 05/31/2022
Number of Days to Update: 26

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 06/01/2022
Next Scheduled EDR Contact: 07/25/2022
Data Release Frequency: Quarterly

Lists of Federal RCRA facilities undergoing Corrective Action

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 02/28/2022
Date Data Arrived at EDR: 03/02/2022
Date Made Active in Reports: 03/17/2022
Number of Days to Update: 15

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 04/06/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Quarterly

Lists of Federal RCRA TSD facilities

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 02/28/2022
Date Data Arrived at EDR: 03/02/2022
Date Made Active in Reports: 03/17/2022
Number of Days to Update: 15

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 04/06/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Quarterly

Lists of Federal RCRA generators

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 02/28/2022
Date Data Arrived at EDR: 03/02/2022
Date Made Active in Reports: 03/17/2022
Number of Days to Update: 15

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 04/06/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 02/28/2022
Date Data Arrived at EDR: 03/02/2022
Date Made Active in Reports: 03/17/2022
Number of Days to Update: 15

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 04/06/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Quarterly

RCRA-VSQG: RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Very small quantity generators (VSQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 02/28/2022
Date Data Arrived at EDR: 03/02/2022
Date Made Active in Reports: 03/17/2022
Number of Days to Update: 15

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 04/06/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 02/08/2022
Date Data Arrived at EDR: 02/11/2022
Date Made Active in Reports: 05/10/2022
Number of Days to Update: 88

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 05/05/2022
Next Scheduled EDR Contact: 08/22/2022
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 02/21/2022
Date Data Arrived at EDR: 02/23/2022
Date Made Active in Reports: 05/24/2022
Number of Days to Update: 90

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 05/24/2022
Next Scheduled EDR Contact: 09/05/2022
Data Release Frequency: Varies

US INST CONTROLS: Institutional Controls Sites List

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 02/21/2022
Date Data Arrived at EDR: 02/23/2022
Date Made Active in Reports: 05/24/2022
Number of Days to Update: 90

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 05/04/2022
Next Scheduled EDR Contact: 09/05/2022
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/2021
Date Data Arrived at EDR: 03/01/2022
Date Made Active in Reports: 03/10/2022
Number of Days to Update: 9

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 03/22/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Quarterly

Lists of state- and tribal (Superfund) equivalent sites

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 01/24/2022
Date Data Arrived at EDR: 01/25/2022
Date Made Active in Reports: 04/13/2022
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 04/26/2022
Next Scheduled EDR Contact: 08/08/2022
Data Release Frequency: Quarterly

Lists of state- and tribal hazardous waste facilities

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 01/24/2022
Date Data Arrived at EDR: 01/25/2022
Date Made Active in Reports: 04/13/2022
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 04/26/2022
Next Scheduled EDR Contact: 08/08/2022
Data Release Frequency: Quarterly

Lists of state and tribal landfills and solid waste disposal facilities

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 02/07/2022
Date Data Arrived at EDR: 02/08/2022
Date Made Active in Reports: 05/05/2022
Number of Days to Update: 86

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 05/09/2022
Next Scheduled EDR Contact: 08/22/2022
Data Release Frequency: Quarterly

Lists of state and tribal leaking storage tanks

LUST REG 6L: Leaking Underground Storage Tank Case Listing
For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 9: Leaking Underground Storage Tank Report
Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks
California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

LUST REG 7: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List
Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List
Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: No Update Planned

LUST REG 1: Active Toxic Site Investigation
Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST: Leaking Underground Fuel Tank Report (GEOTRACKER)
Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 05/24/2022
Number of Days to Update: 1

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 05/23/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Quarterly

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 04/28/2021
Date Data Arrived at EDR: 06/11/2021
Date Made Active in Reports: 09/07/2021
Number of Days to Update: 88

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 05/28/2021
Date Data Arrived at EDR: 06/22/2021
Date Made Active in Reports: 09/20/2021
Number of Days to Update: 90

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

CPS-SLIC: Statewide SLIC Cases (GEOTRACKER)

Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 05/24/2022
Number of Days to Update: 1

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 05/23/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: No Update Planned

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: No Update Planned

Lists of state and tribal registered storage tanks

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 10/14/2021
Date Data Arrived at EDR: 11/05/2021
Date Made Active in Reports: 02/01/2022
Number of Days to Update: 88

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 04/04/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 03/07/2022
Date Data Arrived at EDR: 03/08/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 86
Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 06/07/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Semi-Annually

UST CLOSURE: Proposed Closure of Underground Storage Tank (UST) Cases
UST cases that are being considered for closure by either the State Water Resources Control Board or the Executive Director have been posted for a 60-day public comment period. UST Case Closures being proposed for consideration by the State Water Resources Control Board. These are primarily UST cases that meet closure criteria under the decisional framework in State Water Board Resolution No. 92-49 and other Board orders. UST Case Closures proposed for consideration by the Executive Director pursuant to State Water Board Resolution No. 2012-0061. These are cases that meet the criteria of the Low-Threat UST Case Closure Policy. UST Case Closure Review Denials and Approved Orders.

Date of Government Version: 03/07/2022
Date Data Arrived at EDR: 03/08/2022
Date Made Active in Reports: 06/03/2022
Number of Days to Update: 87
Source: State Water Resources Control Board
Telephone: 916-327-7844
Last EDR Contact: 03/08/2022
Next Scheduled EDR Contact: 06/20/2022
Data Release Frequency: Varies

MILITARY UST SITES: Military UST Sites (GEOTRACKER)
Military ust sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 05/23/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Varies

AST: Aboveground Petroleum Storage Tank Facilities
A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 09/19/2016
Number of Days to Update: 69
Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 03/10/2022
Next Scheduled EDR Contact: 06/27/2022
Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 10/14/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85
Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 04/06/2021
Date Data Arrived at EDR: 06/11/2021
Date Made Active in Reports: 09/07/2021
Number of Days to Update: 88
Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 05/28/2021
Date Data Arrived at EDR: 06/22/2021
Date Made Active in Reports: 09/20/2021
Number of Days to Update: 90

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

Lists of state and tribal voluntary cleanup sites

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142
Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 03/16/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27
Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 07/08/2021
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Properties
Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 01/24/2022
Date Data Arrived at EDR: 01/25/2022
Date Made Active in Reports: 04/13/2022
Number of Days to Update: 78
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 04/26/2022
Next Scheduled EDR Contact: 08/08/2022
Data Release Frequency: Quarterly

Lists of state and tribal brownfield sites

BROWNFIELDS: Considered Brownfieds Sites Listing
A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 12/15/2021
Date Data Arrived at EDR: 12/16/2021
Date Made Active in Reports: 03/03/2022
Number of Days to Update: 77
Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 03/21/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Quarterly

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 02/23/2022
Date Data Arrived at EDR: 03/10/2022
Date Made Active in Reports: 03/10/2022
Number of Days to Update: 0
Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 03/15/2022
Next Scheduled EDR Contact: 06/27/2022
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT: Waste Management Unit Database

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/08/2022
Data Release Frequency: No Update Planned

SWRCY: Recycler Database

A listing of recycling facilities in California.

Date of Government Version: 03/07/2022
Date Data Arrived at EDR: 03/08/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 86

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 06/07/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing

A listing of registered waste tire haulers.

Date of Government Version: 02/15/2022
Date Data Arrived at EDR: 02/24/2022
Date Made Active in Reports: 05/25/2022
Number of Days to Update: 90

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 05/19/2022
Next Scheduled EDR Contact: 08/22/2022
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/08/2022
Data Release Frequency: Varies

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 04/14/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: No Update Planned

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land
A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176
Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 04/28/2022
Next Scheduled EDR Contact: 08/08/2022
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register
A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 02/22/2022
Date Data Arrived at EDR: 02/23/2022
Date Made Active in Reports: 05/10/2022
Number of Days to Update: 76
Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 05/24/2022
Next Scheduled EDR Contact: 09/05/2022
Data Release Frequency: No Update Planned

HIST CAL-SITES: Calsites Database
The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21
Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program
This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 01/24/2022
Date Data Arrived at EDR: 01/25/2022
Date Made Active in Reports: 04/13/2022
Number of Days to Update: 78
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 04/26/2022
Next Scheduled EDR Contact: 08/08/2022
Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs
A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2019
Date Data Arrived at EDR: 01/20/2021
Date Made Active in Reports: 04/08/2021
Number of Days to Update: 78
Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 05/12/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Varies

CERS HAZ WASTE: CERS HAZ WASTE
List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, and RCRA LQ HW Generator programs.

Date of Government Version: 01/18/2022
Date Data Arrived at EDR: 01/19/2022
Date Made Active in Reports: 04/11/2022
Number of Days to Update: 82

Source: CalEPA
Telephone: 916-323-2514
Last EDR Contact: 04/19/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Quarterly

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 02/22/2022
Date Data Arrived at EDR: 02/23/2022
Date Made Active in Reports: 05/10/2022
Number of Days to Update: 76

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 05/24/2022
Next Scheduled EDR Contact: 09/05/2022
Data Release Frequency: Quarterly

AQUEOUS FOAM: Former Fire Training Facility Assessments Listing

Airports shown on this list are those believed to use Aqueous Film Forming Foam (AFFF), and certified by the Federal Aviation Administration (FAA) under Title 14, Code of Federal Regulations (CFR), Part 139 (14 CFR Part 139). This list was created by SWRCB using information available from the FAA. Location points shown are from the latitude and longitude listed on the FAA airport master record.

Date of Government Version: 02/20/2020
Date Data Arrived at EDR: 12/10/2021
Date Made Active in Reports: 02/25/2022
Number of Days to Update: 77

Source: State Water Resources Control Board
Telephone: 916-341-5455
Last EDR Contact: 03/11/2022
Next Scheduled EDR Contact: 06/20/2022
Data Release Frequency: Varies

PFAS: PFAS Contamination Site Location Listing

A listing of PFAS contaminated sites included in the GeoTracker database.

Date of Government Version: 03/07/2022
Date Data Arrived at EDR: 03/08/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 86

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 06/07/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Varies

Local Lists of Registered Storage Tanks

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SAN FRANCISCO AST: Aboveground Storage Tank Site Listing

Aboveground storage tank sites

Date of Government Version: 02/03/2022
Date Data Arrived at EDR: 02/04/2022
Date Made Active in Reports: 05/02/2022
Number of Days to Update: 87

Source: San Francisco County Department of Public Health
Telephone: 415-252-3896
Last EDR Contact: 04/28/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Varies

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CERS TANKS: California Environmental Reporting System (CERS) Tanks

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs.

Date of Government Version: 01/18/2022
Date Data Arrived at EDR: 01/19/2022
Date Made Active in Reports: 04/11/2022
Number of Days to Update: 82

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 04/19/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Quarterly

Local Land Records

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 02/24/2022
Date Data Arrived at EDR: 02/25/2022
Date Made Active in Reports: 03/09/2022
Number of Days to Update: 12

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/25/2022
Next Scheduled EDR Contact: 09/12/2022
Data Release Frequency: Varies

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 04/27/2022
Date Data Arrived at EDR: 05/05/2022
Date Made Active in Reports: 05/31/2022
Number of Days to Update: 26

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 06/01/2022
Next Scheduled EDR Contact: 07/11/2022
Data Release Frequency: Semi-Annually

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 02/28/2022
Date Data Arrived at EDR: 02/28/2022
Date Made Active in Reports: 05/25/2022
Number of Days to Update: 86

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 05/31/2022
Next Scheduled EDR Contact: 09/12/2022
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/15/2021
Date Data Arrived at EDR: 12/16/2021
Date Made Active in Reports: 03/10/2022
Number of Days to Update: 84

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 03/21/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Quarterly

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 12/31/2021
Date Data Arrived at EDR: 01/19/2022
Date Made Active in Reports: 04/08/2022
Number of Days to Update: 79

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 04/19/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Semi-Annually

LDS: Land Disposal Sites Listing (GEOTRACKER)

Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 05/24/2022
Number of Days to Update: 1

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 05/23/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing (GEOTRACKER)

Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 05/24/2022
Number of Days to Update: 1

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 05/23/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 02/28/2022
Date Data Arrived at EDR: 03/02/2022
Date Made Active in Reports: 03/17/2022
Number of Days to Update: 15

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 04/06/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/01/2021
Date Data Arrived at EDR: 02/15/2022
Date Made Active in Reports: 05/10/2022
Number of Days to Update: 84

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 05/17/2022
Next Scheduled EDR Contact: 08/29/2022
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 06/07/2021
Date Data Arrived at EDR: 07/13/2021
Date Made Active in Reports: 03/09/2022
Number of Days to Update: 239

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 04/12/2022
Next Scheduled EDR Contact: 07/25/2022
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/11/2018
Date Made Active in Reports: 11/06/2019
Number of Days to Update: 574

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 04/05/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 01/01/2017
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 05/06/2022
Next Scheduled EDR Contact: 08/22/2022
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 12/13/2021
Date Data Arrived at EDR: 12/17/2021
Date Made Active in Reports: 03/17/2022
Number of Days to Update: 90

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 03/21/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 04/28/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 05/06/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 06/17/2020
Date Made Active in Reports: 09/10/2020
Number of Days to Update: 85

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 03/18/2022
Next Scheduled EDR Contact: 06/27/2022
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 08/14/2020
Date Made Active in Reports: 11/04/2020
Number of Days to Update: 82

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 05/20/2022
Next Scheduled EDR Contact: 08/29/2022
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 01/19/2022
Date Data Arrived at EDR: 01/19/2022
Date Made Active in Reports: 04/11/2022
Number of Days to Update: 82

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 04/20/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 04/27/2022
Date Data Arrived at EDR: 05/05/2022
Date Made Active in Reports: 05/31/2022
Number of Days to Update: 26

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 06/01/2022
Next Scheduled EDR Contact: 09/12/2022
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 04/27/2022
Date Data Arrived at EDR: 05/04/2022
Date Made Active in Reports: 05/10/2022
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 04/18/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties
A listing of verified Potentially Responsible Parties

Date of Government Version: 01/25/2022
Date Data Arrived at EDR: 02/03/2022
Date Made Active in Reports: 02/25/2022
Number of Days to Update: 22

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 06/01/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Quarterly

PADS: PCB Activity Database System
PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 01/20/2022
Date Data Arrived at EDR: 01/20/2022
Date Made Active in Reports: 03/25/2022
Number of Days to Update: 64

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 04/08/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System
The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 03/31/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

MLTS: Material Licensing Tracking System
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/29/2021
Date Data Arrived at EDR: 08/24/2021
Date Made Active in Reports: 11/19/2021
Number of Days to Update: 87

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 04/18/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

COAL ASH DOE: Steam-Electric Plant Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 11/30/2021
Date Made Active in Reports: 02/22/2022
Number of Days to Update: 84
Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 06/02/2022
Next Scheduled EDR Contact: 09/12/2022
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 01/12/2017
Date Data Arrived at EDR: 03/05/2019
Date Made Active in Reports: 11/11/2019
Number of Days to Update: 251
Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 05/25/2022
Next Scheduled EDR Contact: 09/12/2022
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 09/13/2019
Date Data Arrived at EDR: 11/06/2019
Date Made Active in Reports: 02/10/2020
Number of Days to Update: 96
Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 05/06/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/01/2019
Date Data Arrived at EDR: 07/01/2019
Date Made Active in Reports: 09/23/2019
Number of Days to Update: 84
Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 03/28/2022
Next Scheduled EDR Contact: 07/11/2022
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 01/02/2020
Date Data Arrived at EDR: 01/28/2020
Date Made Active in Reports: 04/17/2020
Number of Days to Update: 80

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 04/26/2022
Next Scheduled EDR Contact: 08/08/2022
Data Release Frequency: Quarterly

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/31/2021
Date Data Arrived at EDR: 01/14/2022
Date Made Active in Reports: 03/25/2022
Number of Days to Update: 70

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 04/04/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2019
Date Data Arrived at EDR: 03/02/2022
Date Made Active in Reports: 03/25/2022
Number of Days to Update: 23

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 03/02/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 04/05/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 07/26/2021
Date Data Arrived at EDR: 07/27/2021
Date Made Active in Reports: 10/22/2021
Number of Days to Update: 87

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 04/28/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 08/30/2019
Date Data Arrived at EDR: 11/15/2019
Date Made Active in Reports: 01/28/2020
Number of Days to Update: 74

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 05/16/2022
Next Scheduled EDR Contact: 08/29/2022
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 04/27/2022
Date Data Arrived at EDR: 05/05/2022
Date Made Active in Reports: 05/31/2022
Number of Days to Update: 26

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 09/01/2022
Next Scheduled EDR Contact: 07/11/2022
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 02/01/2022
Date Data Arrived at EDR: 02/23/2022
Date Made Active in Reports: 05/24/2022
Number of Days to Update: 90

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 05/25/2022
Next Scheduled EDR Contact: 09/05/2022
Data Release Frequency: Semi-Annually

MINES VIOLATIONS: MSHA Violation Assessment Data

Mines violation and assessment information. Department of Labor, Mine Safety & Health Administration.

Date of Government Version: 03/21/2022
Date Data Arrived at EDR: 03/22/2022
Date Made Active in Reports: 03/25/2022
Number of Days to Update: 3

Source: DOL, Mine Safety & Health Admi
Telephone: 202-693-9424
Last EDR Contact: 05/26/2022
Next Scheduled EDR Contact: 09/12/2022
Data Release Frequency: Quarterly

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 05/06/2020
Date Data Arrived at EDR: 05/27/2020
Date Made Active in Reports: 08/13/2020
Number of Days to Update: 78

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 05/27/2022
Next Scheduled EDR Contact: 09/05/2022
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 05/27/2022
Next Scheduled EDR Contact: 09/05/2022
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 12/14/2021
Date Data Arrived at EDR: 12/15/2021
Date Made Active in Reports: 03/10/2022
Number of Days to Update: 85

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 06/02/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 05/13/2022
Date Data Arrived at EDR: 05/18/2022
Date Made Active in Reports: 05/31/2022
Number of Days to Update: 13

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 05/18/2022
Next Scheduled EDR Contact: 09/12/2022
Data Release Frequency: Quarterly

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 05/06/2021
Date Data Arrived at EDR: 05/21/2021
Date Made Active in Reports: 08/11/2021
Number of Days to Update: 82

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 05/19/2022
Next Scheduled EDR Contact: 09/05/2022
Data Release Frequency: Varies

UXO: Unexploded Ordnance Sites
A listing of unexploded ordnance site locations

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 01/11/2022
Date Made Active in Reports: 02/14/2022
Number of Days to Update: 34
Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 04/12/2022
Next Scheduled EDR Contact: 07/25/2022
Data Release Frequency: Varies

ECHO: Enforcement & Compliance History Information
ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 01/01/2022
Date Data Arrived at EDR: 01/04/2022
Date Made Active in Reports: 01/10/2022
Number of Days to Update: 6
Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 04/05/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Quarterly

FUELS PROGRAM: EPA Fuels Program Registered Listing
This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 02/17/2022
Date Data Arrived at EDR: 02/17/2022
Date Made Active in Reports: 05/10/2022
Number of Days to Update: 82
Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 05/17/2022
Next Scheduled EDR Contact: 08/29/2022
Data Release Frequency: Quarterly

CA BOND EXP. PLAN: Bond Expenditure Plan
Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6
Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CORTESE: "Cortese" Hazardous Waste & Substances Sites List
The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 12/16/2021
Date Data Arrived at EDR: 12/16/2021
Date Made Active in Reports: 03/03/2022
Number of Days to Update: 77
Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 03/21/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Quarterly

CUPA LIVERMORE-PLEASANTON: CUPA Facility Listing
list of facilities associated with the various CUPA programs in Livermore-Pleasanton

Date of Government Version: 12/07/2021
Date Data Arrived at EDR: 05/09/2022
Date Made Active in Reports: 05/17/2022
Number of Days to Update: 8
Source: Livermore-Pleasanton Fire Department
Telephone: 925-454-2361
Last EDR Contact: 05/09/2022
Next Scheduled EDR Contact: 08/22/2022
Data Release Frequency: Varies

DRYCLEAN AVAQMD: Antelope Valley Air Quality Management District Drycleaner Listing
A listing of dry cleaners in the Antelope Valley Air Quality Management District.

Date of Government Version: 02/24/2022
Date Data Arrived at EDR: 02/25/2022
Date Made Active in Reports: 05/18/2022
Number of Days to Update: 82

Source: Antelope Valley Air Quality Management District
Telephone: 661-723-8070
Last EDR Contact: 05/25/2022
Next Scheduled EDR Contact: 09/12/2022
Data Release Frequency: Varies

DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 08/27/2021
Date Data Arrived at EDR: 09/01/2021
Date Made Active in Reports: 11/19/2021
Number of Days to Update: 79

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 06/01/2022
Next Scheduled EDR Contact: 09/12/2022
Data Release Frequency: Annually

DRYCLEAN SOUTH COAST: South Coast Air Quality Management District Drycleaner Listing

A listing of dry cleaners in the South Coast Air Quality Management District

Date of Government Version: 02/17/2022
Date Data Arrived at EDR: 02/24/2022
Date Made Active in Reports: 05/18/2022
Number of Days to Update: 83

Source: South Coast Air Quality Management District
Telephone: 909-396-3211
Last EDR Contact: 05/19/2022
Next Scheduled EDR Contact: 09/05/2022
Data Release Frequency: Varies

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2019
Date Data Arrived at EDR: 06/10/2021
Date Made Active in Reports: 08/27/2021
Number of Days to Update: 78

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 03/18/2022
Next Scheduled EDR Contact: 06/27/2022
Data Release Frequency: Varies

ENF: Enforcement Action Listing

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 04/12/2022
Date Data Arrived at EDR: 04/19/2022
Date Made Active in Reports: 05/31/2022
Number of Days to Update: 42

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 04/19/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing

Financial Assurance information

Date of Government Version: 01/13/2022
Date Data Arrived at EDR: 01/14/2022
Date Made Active in Reports: 04/08/2022
Number of Days to Update: 84

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 04/28/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing

A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 02/23/2022
Date Data Arrived at EDR: 02/24/2022
Date Made Active in Reports: 05/18/2022
Number of Days to Update: 83

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 05/19/2022
Next Scheduled EDR Contact: 08/22/2022
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2019
Date Data Arrived at EDR: 04/15/2020
Date Made Active in Reports: 07/02/2020
Number of Days to Update: 78

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 04/08/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Annually

ICE: ICE

Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 02/14/2022
Date Data Arrived at EDR: 02/15/2022
Date Made Active in Reports: 05/12/2022
Number of Days to Update: 86

Source: Department of Toxic Subsances Control
Telephone: 877-786-9427
Last EDR Contact: 05/17/2022
Next Scheduled EDR Contact: 08/29/2022
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HWP: EnviroStor Permitted Facilities Listing

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 02/14/2022
Date Data Arrived at EDR: 02/15/2022
Date Made Active in Reports: 05/12/2022
Number of Days to Update: 86

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/17/2022
Next Scheduled EDR Contact: 08/29/2022
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 01/03/2022
Date Data Arrived at EDR: 01/04/2022
Date Made Active in Reports: 03/18/2022
Number of Days to Update: 73

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 04/05/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Quarterly

MINES: Mines Site Location Listing
A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 03/07/2022
Date Data Arrived at EDR: 03/08/2022
Date Made Active in Reports: 06/01/2022
Number of Days to Update: 85
Source: Department of Conservation
Telephone: 916-322-1080
Last EDR Contact: 06/07/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Quarterly

MWMP: Medical Waste Management Program Listing
The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 02/17/2022
Date Data Arrived at EDR: 02/28/2022
Date Made Active in Reports: 05/25/2022
Number of Days to Update: 86
Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 05/31/2022
Next Scheduled EDR Contact: 09/12/2022
Data Release Frequency: Varies

NPDES: NPDES Permits Listing
A listing of NPDES permits, including stormwater.

Date of Government Version: 02/07/2022
Date Data Arrived at EDR: 02/08/2022
Date Made Active in Reports: 05/05/2022
Number of Days to Update: 86
Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 05/09/2022
Next Scheduled EDR Contact: 08/22/2022
Data Release Frequency: Quarterly

PEST LIC: Pesticide Regulation Licenses Listing
A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 02/28/2022
Date Data Arrived at EDR: 02/28/2022
Date Made Active in Reports: 05/25/2022
Number of Days to Update: 86
Source: Department of Pesticide Regulation
Telephone: 916-445-4038
Last EDR Contact: 05/31/2022
Next Scheduled EDR Contact: 09/12/2022
Data Release Frequency: Quarterly

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 03/07/2022
Date Data Arrived at EDR: 03/08/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 86
Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 06/07/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Quarterly

NOTIFY 65: Proposition 65 Records
Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 03/11/2022
Date Data Arrived at EDR: 03/15/2022
Date Made Active in Reports: 06/08/2022
Number of Days to Update: 85
Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 03/09/2022
Next Scheduled EDR Contact: 06/26/2022
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UIC: UIC Listing
A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 03/07/2022
Date Data Arrived at EDR: 03/08/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 86
Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 06/07/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Varies

UIC GEO: Underground Injection Control Sites (GEOTRACKER)
Underground control injection sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10
Source: State Water Resource Control Board
Telephone: 866-480-1028
Last EDR Contact: 05/23/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Varies

WASTEWATER PITS: Oil Wastewater Pits Listing
Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water boards review found that more than one-third of the region's active disposal pits are operating without permission.

Date of Government Version: 02/11/2021
Date Data Arrived at EDR: 07/01/2021
Date Made Active in Reports: 09/29/2021
Number of Days to Update: 90
Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 04/08/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Varies

WDS: Waste Discharge System
Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9
Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 05/12/2022
Next Scheduled EDR Contact: 08/29/2022
Data Release Frequency: No Update Planned

WIP: Well Investigation Program Case List
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13
Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 03/16/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: No Update Planned

MILITARY PRIV SITES: Military Privatized Sites (GEOTRACKER)
Military privatized sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 05/23/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Varies

PROJECT: Project Sites (GEOTRACKER)
Projects sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 05/23/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Varies

WDR: Waste Discharge Requirements Listing

In general, the Waste Discharge Requirements (WDRs) Program (sometimes also referred to as the "Non Chapter 15 (Non 15) Program") regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act. Exemptions from Title 27 may be granted for nine categories of discharges (e.g., sewage, wastewater, etc.) that meet, and continue to meet, the preconditions listed for each specific exemption. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to section 20230 of Title 27.

Date of Government Version: 03/07/2022
Date Data Arrived at EDR: 03/08/2022
Date Made Active in Reports: 06/03/2022
Number of Days to Update: 87

Source: State Water Resources Control Board
Telephone: 916-341-5810
Last EDR Contact: 06/07/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Quarterly

CIWQS: California Integrated Water Quality System

The California Integrated Water Quality System (CIWQS) is a computer system used by the State and Regional Water Quality Control Boards to track information about places of environmental interest, manage permits and other orders, track inspections, and manage violations and enforcement activities.

Date of Government Version: 02/28/2022
Date Data Arrived at EDR: 02/28/2022
Date Made Active in Reports: 05/25/2022
Number of Days to Update: 86

Source: State Water Resources Control Board
Telephone: 866-794-4977
Last EDR Contact: 05/31/2022
Next Scheduled EDR Contact: 09/12/2022
Data Release Frequency: Varies

CERS: CalEPA Regulated Site Portal Data

The CalEPA Regulated Site Portal database combines data about environmentally regulated sites and facilities in California into a single database. It combines data from a variety of state and federal databases, and provides an overview of regulated activities across the spectrum of environmental programs for any given location in California. These activities include hazardous materials and waste, state and federal cleanups, impacted ground and surface waters, and toxic materials

Date of Government Version: 01/18/2022
Date Data Arrived at EDR: 01/19/2022
Date Made Active in Reports: 04/08/2022
Number of Days to Update: 79

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 04/19/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

NON-CASE INFO: Non-Case Information Sites (GEOTRACKER)

Non-Case Information sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 05/23/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Varies

OTHER OIL GAS: Other Oil & Gas Projects Sites (GEOTRACKER)

Other Oil & Gas Projects sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 05/23/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Varies

PROD WATER PONDS: Produced Water Ponds Sites (GEOTRACKER)
Produced water ponds sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 05/23/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Varies

SAMPLING POINT: Sampling Point ? Public Sites (GEOTRACKER)
Sampling point - public sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 05/23/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Varies

WELL STIM PROJ: Well Stimulation Project (GEOTRACKER)
Includes areas of groundwater monitoring plans, a depiction of the monitoring network, and the facilities, boundaries, and subsurface characteristics of the oilfield and the features (oil and gas wells, produced water ponds, UIC wells, water supply wells, etc?) being monitored

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 05/23/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Varies

PCS ENF: Enforcement data
No description is available for this data

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 02/05/2015
Date Made Active in Reports: 03/06/2015
Number of Days to Update: 29

Source: EPA
Telephone: 202-564-2497
Last EDR Contact: 03/31/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Varies

HWTS: Hazardous Waste Tracking System
DTSC maintains the Hazardous Waste Tracking System that stores ID number information since the early 1980s and manifest data since 1993. The system collects both manifest copies from the generator and destination facility.

Date of Government Version: 04/05/2022
Date Data Arrived at EDR: 04/05/2022
Date Made Active in Reports: 04/26/2022
Number of Days to Update: 21

Source: Department of Toxic Substances Control
Telephone: 916-324-2444
Last EDR Contact: 04/05/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Varies

MINES MRDS: Mineral Resources Data System
Mineral Resources Data System

Date of Government Version: 04/06/2018
Date Data Arrived at EDR: 10/21/2019
Date Made Active in Reports: 10/24/2019
Number of Days to Update: 3

Source: USGS
Telephone: 703-648-6533
Last EDR Contact: 05/27/2022
Next Scheduled EDR Contact: 09/05/2022
Data Release Frequency: Varies

PCS: Permit Compliance System
PCS is a computerized management information system that contains data on National Pollutant Discharge Elimination System (NPDES) permit holding facilities. PCS tracks the permit, compliance, and enforcement status of NPDES facilities.

Date of Government Version: 07/14/2011
Date Data Arrived at EDR: 08/05/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 55

Source: EPA, Office of Water
Telephone: 202-564-2496
Last EDR Contact: 03/31/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Semi-Annually

PCS INACTIVE: Listing of Inactive PCS Permits
An inactive permit is a facility that has shut down or is no longer discharging.

Date of Government Version: 11/05/2014
Date Data Arrived at EDR: 01/06/2015
Date Made Active in Reports: 05/06/2015
Number of Days to Update: 120

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 03/31/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Semi-Annually

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants
The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations
EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners
EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

CS ALAMEDA: Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 01/09/2019
Date Data Arrived at EDR: 01/11/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 53

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 03/31/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Semi-Annually

UST ALAMEDA: Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 12/28/2021
Date Data Arrived at EDR: 12/28/2021
Date Made Active in Reports: 03/18/2022
Number of Days to Update: 80

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 04/28/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA AMADOR: CUPA Facility List
Cupa Facility List

Date of Government Version: 02/04/2022
Date Data Arrived at EDR: 02/04/2022
Date Made Active in Reports: 05/02/2022
Number of Days to Update: 87

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 05/12/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA BUTTE: CUPA Facility Listing
Cupa facility list.

Date of Government Version: 04/21/2017
Date Data Arrived at EDR: 04/25/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 106

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 03/31/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA CALVERAS: CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 03/17/2022
Date Data Arrived at EDR: 03/18/2022
Date Made Active in Reports: 06/08/2022
Number of Days to Update: 82

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 03/17/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA COLUSA: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/06/2020
Date Data Arrived at EDR: 04/23/2020
Date Made Active in Reports: 07/10/2020
Number of Days to Update: 78

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 04/28/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

SL CONTRA COSTA: Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 01/24/2022
Date Data Arrived at EDR: 01/25/2022
Date Made Active in Reports: 04/14/2022
Number of Days to Update: 79

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/08/2022
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA DEL NORTE: CUPA Facility List
Cupa Facility list

Date of Government Version: 01/10/2022
Date Data Arrived at EDR: 01/26/2022
Date Made Active in Reports: 04/14/2022
Number of Days to Update: 78

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 05/04/2022
Next Scheduled EDR Contact: 08/08/2022
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA EL DORADO: CUPA Facility List
CUPA facility list.

Date of Government Version: 02/16/2022
Date Data Arrived at EDR: 02/17/2022
Date Made Active in Reports: 05/10/2022
Number of Days to Update: 82

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 06/02/2022
Next Scheduled EDR Contact: 08/08/2022
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA FRESNO: CUPA Resources List
Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 06/28/2021
Date Data Arrived at EDR: 12/21/2021
Date Made Active in Reports: 03/03/2022
Number of Days to Update: 72

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 03/31/2022
Next Scheduled EDR Contact: 07/11/2022
Data Release Frequency: Semi-Annually

GLENN COUNTY:

CUPA GLENN: CUPA Facility List
Cupa facility list

Date of Government Version: 01/22/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 49

Source: Glenn County Air Pollution Control District
Telephone: 830-934-6500
Last EDR Contact: 04/14/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: No Update Planned

HUMBOLDT COUNTY:

CUPA HUMBOLDT: CUPA Facility List
CUPA facility list.

Date of Government Version: 08/12/2021
Date Data Arrived at EDR: 08/12/2021
Date Made Active in Reports: 11/08/2021
Number of Days to Update: 88

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 05/12/2022
Next Scheduled EDR Contact: 08/29/2022
Data Release Frequency: Semi-Annually

IMPERIAL COUNTY:

CUPA IMPERIAL: CUPA Facility List
Cupa facility list.

Date of Government Version: 01/13/2022
Date Data Arrived at EDR: 01/14/2022
Date Made Active in Reports: 04/06/2022
Number of Days to Update: 82

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 04/18/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

INYO COUNTY:

CUPA INYO: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/03/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 72

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 05/12/2022
Next Scheduled EDR Contact: 08/29/2022
Data Release Frequency: Varies

KERN COUNTY:

CUPA KERN: CUPA Facility List
A listing of sites included in the Kern County Hazardous Material Business Plan.

Date of Government Version: 02/10/2022
Date Data Arrived at EDR: 02/11/2022
Date Made Active in Reports: 05/04/2022
Number of Days to Update: 82

Source: Kern County Public Health
Telephone: 661-321-3000
Last EDR Contact: 04/28/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Varies

UST KERN: Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 02/10/2022
Date Data Arrived at EDR: 02/11/2022
Date Made Active in Reports: 05/04/2022
Number of Days to Update: 82

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 04/28/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA KINGS: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 12/03/2020
Date Data Arrived at EDR: 01/26/2021
Date Made Active in Reports: 04/14/2021
Number of Days to Update: 78

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 05/25/2022
Next Scheduled EDR Contact: 08/29/2022
Data Release Frequency: Varies

LAKE COUNTY:

CUPA LAKE: CUPA Facility List
Cupa facility list

Date of Government Version: 02/10/2022
Date Data Arrived at EDR: 02/11/2022
Date Made Active in Reports: 05/04/2022
Number of Days to Update: 82

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 04/11/2022
Next Scheduled EDR Contact: 07/25/2022
Data Release Frequency: Varies

LASSEN COUNTY:

CUPA LASSEN: CUPA Facility List
Cupa facility list

Date of Government Version: 07/31/2020
Date Data Arrived at EDR: 08/21/2020
Date Made Active in Reports: 11/09/2020
Number of Days to Update: 80

Source: Lassen County Environmental Health
Telephone: 530-251-8528
Last EDR Contact: 04/14/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

LOS ANGELES COUNTY:

AOCONCERN: Key Areas of Concerns in Los Angeles County
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office. Date of Government Version: 3/30/2009 Exide Site area is a cleanup plan of lead-impacted soil surrounding the former Exide Facility as designated by the DTSC. Date of Government Version: 7/17/2017

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: N/A
Telephone: N/A
Last EDR Contact: 03/10/2022
Next Scheduled EDR Contact: 06/27/2022
Data Release Frequency: No Update Planned

HMS LOS ANGELES: HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 04/04/2022
Date Data Arrived at EDR: 04/05/2022
Date Made Active in Reports: 04/13/2022
Number of Days to Update: 8

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 04/04/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Semi-Annually

LF LOS ANGELES: List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 01/10/2022
Date Data Arrived at EDR: 01/11/2022
Date Made Active in Reports: 04/04/2022
Number of Days to Update: 83

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 04/12/2022
Next Scheduled EDR Contact: 07/25/2022
Data Release Frequency: Varies

LF LOS ANGELES CITY: City of Los Angeles Landfills
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 01/01/2022
Date Data Arrived at EDR: 01/21/2022
Date Made Active in Reports: 04/11/2022
Number of Days to Update: 80

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 04/08/2022
Next Scheduled EDR Contact: 07/25/2022
Data Release Frequency: Varies

LOS ANGELES AST: Active & Inactive AST Inventory
A listing of active & inactive above ground petroleum storage tank site locations, located in the City of Los Angeles.

Date of Government Version: 06/01/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 58
Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 03/23/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Varies

LOS ANGELES CO LF METHANE: Methane Producing Landfills
This data was created on April 30, 2012 to represent known disposal sites in Los Angeles County that may produce and emanate methane gas. The shapefile contains disposal sites within Los Angeles County that once accepted degradable refuse material. Information used to create this data was extracted from a landfill survey performed by County Engineers (Major Waste System Map, 1973) as well as historical records from CalRecycle, Regional Water Quality Control Board, and Los Angeles County Department of Public Health

Date of Government Version: 01/10/2022
Date Data Arrived at EDR: 01/12/2022
Date Made Active in Reports: 04/04/2022
Number of Days to Update: 82
Source: Los Angeles County Department of Public Works
Telephone: 626-458-6973
Last EDR Contact: 04/13/2022
Next Scheduled EDR Contact: 07/25/2022
Data Release Frequency: No Update Planned

LOS ANGELES HM: Active & Inactive Hazardous Materials Inventory
A listing of active & inactive hazardous materials facility locations, located in the City of Los Angeles.

Date of Government Version: 04/19/2021
Date Data Arrived at EDR: 06/17/2021
Date Made Active in Reports: 06/28/2021
Number of Days to Update: 11
Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 03/21/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Varies

LOS ANGELES UST: Active & Inactive UST Inventory
A listing of active & inactive underground storage tank site locations and underground storage tank historical sites, located in the City of Los Angeles.

Date of Government Version: 04/19/2021
Date Data Arrived at EDR: 06/17/2021
Date Made Active in Reports: 09/14/2021
Number of Days to Update: 89
Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 03/21/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Varies

SITE MIT LOS ANGELES: Site Mitigation List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 05/26/2021
Date Data Arrived at EDR: 07/09/2021
Date Made Active in Reports: 09/29/2021
Number of Days to Update: 82
Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 04/14/2022
Next Scheduled EDR Contact: 07/25/2022
Data Release Frequency: Annually

UST EL SEGUNDO: City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 04/19/2017
Date Made Active in Reports: 05/10/2017
Number of Days to Update: 21
Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 04/08/2022
Next Scheduled EDR Contact: 07/25/2022
Data Release Frequency: No Update Planned

UST LONG BEACH: City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 04/22/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/27/2019
Number of Days to Update: 65

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 04/14/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

UST TORRANCE: City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 02/02/2021
Date Data Arrived at EDR: 04/28/2021
Date Made Active in Reports: 07/13/2021
Number of Days to Update: 76

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 04/18/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA MADERA: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 08/10/2020
Date Data Arrived at EDR: 08/12/2020
Date Made Active in Reports: 10/23/2020
Number of Days to Update: 72

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 05/12/2022
Next Scheduled EDR Contact: 08/29/2022
Data Release Frequency: Varies

MARIN COUNTY:

UST MARIN: Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 09/26/2018
Date Data Arrived at EDR: 10/04/2018
Date Made Active in Reports: 11/02/2018
Number of Days to Update: 29

Source: Public Works Department Waste Management
Telephone: 415-473-6647
Last EDR Contact: 03/23/2022
Next Scheduled EDR Contact: 07/11/2022
Data Release Frequency: Semi-Annually

MENDOCINO COUNTY:

UST MENDOCINO: Mendocino County UST Database
A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 09/22/2021
Date Data Arrived at EDR: 11/18/2021
Date Made Active in Reports: 11/22/2021
Number of Days to Update: 4

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 05/19/2022
Next Scheduled EDR Contact: 09/05/2022
Data Release Frequency: Annually

MERCED COUNTY:

CUPA MERCED: CUPA Facility List
CUPA facility list.

Date of Government Version: 02/15/2022
Date Data Arrived at EDR: 02/17/2022
Date Made Active in Reports: 05/11/2022
Number of Days to Update: 83

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 05/25/2022
Next Scheduled EDR Contact: 08/29/2022
Data Release Frequency: Varies

MONO COUNTY:

CUPA MONO: CUPA Facility List
CUPA Facility List

Date of Government Version: 02/22/2021
Date Data Arrived at EDR: 03/02/2021
Date Made Active in Reports: 05/19/2021
Number of Days to Update: 78

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 05/19/2022
Next Scheduled EDR Contact: 09/05/2022
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA MONTEREY: CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 10/04/2021
Date Data Arrived at EDR: 10/06/2021
Date Made Active in Reports: 12/29/2021
Number of Days to Update: 84

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 04/04/2022
Next Scheduled EDR Contact: 07/11/2022
Data Release Frequency: Varies

NAPA COUNTY:

LUST NAPA: Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 05/19/2022
Next Scheduled EDR Contact: 09/05/2022
Data Release Frequency: No Update Planned

UST NAPA: Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 09/05/2019
Date Data Arrived at EDR: 09/09/2019
Date Made Active in Reports: 10/31/2019
Number of Days to Update: 52

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 05/19/2022
Next Scheduled EDR Contact: 09/05/2022
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA NEVADA: CUPA Facility List
CUPA facility list.

Date of Government Version: 01/25/2022
Date Data Arrived at EDR: 01/26/2022
Date Made Active in Reports: 04/14/2022
Number of Days to Update: 78

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/08/2022
Data Release Frequency: Varies

ORANGE COUNTY:

IND_SITE ORANGE: List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 01/14/2022
Date Data Arrived at EDR: 02/03/2022
Date Made Active in Reports: 04/14/2022
Number of Days to Update: 70

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 05/02/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Annually

LUST ORANGE: List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 01/14/2022
Date Data Arrived at EDR: 02/04/2022
Date Made Active in Reports: 05/02/2022
Number of Days to Update: 87

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 05/02/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Quarterly

UST ORANGE: List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 01/14/2022
Date Data Arrived at EDR: 02/01/2022
Date Made Active in Reports: 04/18/2022
Number of Days to Update: 76

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 05/03/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Quarterly

PLACER COUNTY:

MS PLACER: Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 05/25/2022
Date Data Arrived at EDR: 05/26/2022
Date Made Active in Reports: 06/01/2022
Number of Days to Update: 6

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 05/25/2022
Next Scheduled EDR Contact: 09/12/2022
Data Release Frequency: Semi-Annually

PLUMAS COUNTY:

CUPA PLUMAS: CUPA Facility List
Plumas County CUPA Program facilities.

Date of Government Version: 03/31/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/26/2019
Number of Days to Update: 64

Source: Plumas County Environmental Health
Telephone: 530-283-6355
Last EDR Contact: 04/14/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

RIVERSIDE COUNTY:

LUST RIVERSIDE: Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 03/31/2022
Date Data Arrived at EDR: 03/31/2022
Date Made Active in Reports: 04/08/2022
Number of Days to Update: 8

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 03/14/2022
Next Scheduled EDR Contact: 06/27/2022
Data Release Frequency: Quarterly

UST RIVERSIDE: Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 03/31/2022
Date Data Arrived at EDR: 03/31/2022
Date Made Active in Reports: 04/08/2022
Number of Days to Update: 8

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 03/14/2022
Next Scheduled EDR Contact: 06/27/2022
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

CS SACRAMENTO: Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 06/18/2021
Date Data Arrived at EDR: 09/28/2021
Date Made Active in Reports: 12/14/2021
Number of Days to Update: 77

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 03/31/2022
Next Scheduled EDR Contact: 07/11/2022
Data Release Frequency: Quarterly

ML SACRAMENTO: Master Hazardous Materials Facility List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 08/02/2021
Date Data Arrived at EDR: 08/04/2021
Date Made Active in Reports: 11/02/2021
Number of Days to Update: 90

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 03/31/2022
Next Scheduled EDR Contact: 07/11/2022
Data Release Frequency: Quarterly

SAN BENITO COUNTY:

CUPA SAN BENITO: CUPA Facility List
Cupa facility list

Date of Government Version: 04/29/2022
Date Data Arrived at EDR: 04/29/2022
Date Made Active in Reports: 05/05/2022
Number of Days to Update: 6

Source: San Benito County Environmental Health
Telephone: N/A
Last EDR Contact: 04/28/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Varies

SAN BERNARDINO COUNTY:

PERMITS SAN BERNARDINO: Hazardous Material Permits
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 05/12/2022
Date Data Arrived at EDR: 05/12/2022
Date Made Active in Reports: 05/18/2022
Number of Days to Update: 6

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 04/28/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

HMMD SAN DIEGO: Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 02/28/2022
Date Data Arrived at EDR: 02/28/2022
Date Made Active in Reports: 05/25/2022
Number of Days to Update: 86

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 05/31/2022
Next Scheduled EDR Contact: 09/12/2022
Data Release Frequency: Quarterly

LF SAN DIEGO: Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 10/27/2021
Date Data Arrived at EDR: 03/04/2022
Date Made Active in Reports: 05/31/2022
Number of Days to Update: 88

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 04/14/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

SAN DIEGO CO LOP: Local Oversight Program Listing

A listing of all LOP release sites that are or were under the County of San Diego's jurisdiction. Included are closed or transferred cases, open cases, and cases that did not have a case type indicated. The cases without a case type are mostly complaints; however, some of them could be LOP cases.

Date of Government Version: 07/22/2021
Date Data Arrived at EDR: 10/19/2021
Date Made Active in Reports: 01/13/2022
Number of Days to Update: 86

Source: Department of Environmental Health
Telephone: 858-505-6874
Last EDR Contact: 04/18/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

SAN DIEGO CO SAM: Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 05/25/2022
Next Scheduled EDR Contact: 09/12/2022
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

CUPA SAN FRANCISCO CO: CUPA Facility Listing

Cupa facilities

Date of Government Version: 02/03/2022
Date Data Arrived at EDR: 02/04/2022
Date Made Active in Reports: 02/11/2022
Number of Days to Update: 7

Source: San Francisco County Department of Environmental Health
Telephone: 415-252-3896
Last EDR Contact: 04/28/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Varies

LUST SAN FRANCISCO: Local Oversite Facilities
A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 04/28/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: No Update Planned

UST SAN FRANCISCO: Underground Storage Tank Information
Underground storage tank sites located in San Francisco county.

Date of Government Version: 02/03/2022
Date Data Arrived at EDR: 02/04/2022
Date Made Active in Reports: 05/02/2022
Number of Days to Update: 87

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 04/28/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Quarterly

SAN FRANCISO COUNTY:

SAN FRANCISCO MAHER: Maher Ordinance Property Listing
a listing of properties that fall within a Maher Ordinance, for all of San Francisco

Date of Government Version: 01/18/2022
Date Data Arrived at EDR: 01/20/2022
Date Made Active in Reports: 04/27/2022
Number of Days to Update: 97

Source: San Francisco Planning
Telephone: 628-652-7483
Last EDR Contact: 05/06/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

SAN JOAQUIN COUNTY:

UST SAN JOAQUIN: San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 06/22/2018
Date Data Arrived at EDR: 06/26/2018
Date Made Active in Reports: 07/11/2018
Number of Days to Update: 15

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 03/10/2022
Next Scheduled EDR Contact: 06/27/2022
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA SAN LUIS OBISPO: CUPA Facility List
Cupa Facility List.

Date of Government Version: 02/15/2022
Date Data Arrived at EDR: 02/16/2022
Date Made Active in Reports: 05/13/2022
Number of Days to Update: 86

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 05/12/2022
Next Scheduled EDR Contact: 08/29/2022
Data Release Frequency: Varies

SAN MATEO COUNTY:

BI SAN MATEO: Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 02/20/2020
Date Data Arrived at EDR: 02/20/2020
Date Made Active in Reports: 04/24/2020
Number of Days to Update: 64
Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 03/11/2022
Next Scheduled EDR Contact: 06/20/2022
Data Release Frequency: Annually

LUST SAN MATEO: Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 03/29/2019
Date Data Arrived at EDR: 03/29/2019
Date Made Active in Reports: 05/29/2019
Number of Days to Update: 61
Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 06/02/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA SANTA BARBARA: CUPA Facility Listing
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28
Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 05/12/2022
Next Scheduled EDR Contact: 08/29/2022
Data Release Frequency: No Update Planned

SANTA CLARA COUNTY:

CUPA SANTA CLARA: Cupa Facility List
Cupa facility list

Date of Government Version: 02/14/2022
Date Data Arrived at EDR: 02/16/2022
Date Made Active in Reports: 05/12/2022
Number of Days to Update: 85
Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 05/12/2022
Next Scheduled EDR Contact: 08/29/2022
Data Release Frequency: Varies

HIST LUST SANTA CLARA: HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22
Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LUST SANTA CLARA: LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13
Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 05/19/2022
Next Scheduled EDR Contact: 09/05/2022
Data Release Frequency: No Update Planned

SAN JOSE HAZMAT: Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 11/03/2020
Date Data Arrived at EDR: 11/05/2020
Date Made Active in Reports: 01/26/2021
Number of Days to Update: 82

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 04/28/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA SANTA CRUZ: CUPA Facility List
CUPA facility listing.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 90

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 05/12/2022
Next Scheduled EDR Contact: 08/29/2022
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA SHASTA: CUPA Facility List
Cupa Facility List.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/19/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 51

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 05/12/2022
Next Scheduled EDR Contact: 08/29/2022
Data Release Frequency: Varies

SOLANO COUNTY:

LUST SOLANO: Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 06/04/2019
Date Data Arrived at EDR: 06/06/2019
Date Made Active in Reports: 08/13/2019
Number of Days to Update: 68

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 05/25/2022
Next Scheduled EDR Contact: 09/12/2022
Data Release Frequency: Quarterly

UST SOLANO: Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 09/15/2021
Date Data Arrived at EDR: 09/16/2021
Date Made Active in Reports: 12/09/2021
Number of Days to Update: 84

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 05/25/2022
Next Scheduled EDR Contact: 09/12/2022
Data Release Frequency: Quarterly

SONOMA COUNTY:

CUPA SONOMA: Cupa Facility List
Cupa Facility list

Date of Government Version: 07/02/2021
Date Data Arrived at EDR: 07/06/2021
Date Made Active in Reports: 07/14/2021
Number of Days to Update: 8

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 03/16/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Varies

LUST SONOMA: Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 06/30/2021
Date Data Arrived at EDR: 06/30/2021
Date Made Active in Reports: 09/24/2021
Number of Days to Update: 86

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 03/16/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Quarterly

STANISLAUS COUNTY:

CUPA STANISLAUS: CUPA Facility List
Cupa facility list

Date of Government Version: 02/08/2022
Date Data Arrived at EDR: 02/10/2022
Date Made Active in Reports: 05/04/2022
Number of Days to Update: 83

Source: Stanislaus County Department of Ennvironmental Protection
Telephone: 209-525-6751
Last EDR Contact: 04/11/2022
Next Scheduled EDR Contact: 07/25/2022
Data Release Frequency: Varies

SUTTER COUNTY:

UST SUTTER: Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 11/23/2021
Date Data Arrived at EDR: 11/29/2021
Date Made Active in Reports: 02/11/2022
Number of Days to Update: 74

Source: Sutter County Environmental Health Services
Telephone: 530-822-7500
Last EDR Contact: 05/25/2022
Next Scheduled EDR Contact: 09/12/2022
Data Release Frequency: Semi-Annually

TEHAMA COUNTY:

CUPA TEHAMA: CUPA Facility List
Cupa facilities

Date of Government Version: 01/13/2021
Date Data Arrived at EDR: 01/14/2021
Date Made Active in Reports: 04/06/2021
Number of Days to Update: 82

Source: Tehama County Department of Environmental Health
Telephone: 530-527-8020
Last EDR Contact: 04/28/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Varies

TRINITY COUNTY:

CUPA TRINITY: CUPA Facility List
Cupa facility list

Date of Government Version: 01/13/2022
Date Data Arrived at EDR: 01/14/2022
Date Made Active in Reports: 04/06/2022
Number of Days to Update: 82

Source: Department of Toxic Substances Control
Telephone: 760-352-0381
Last EDR Contact: 04/18/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

TULARE COUNTY:

CUPA TULARE: CUPA Facility List
Cupa program facilities

Date of Government Version: 04/26/2021
Date Data Arrived at EDR: 04/28/2021
Date Made Active in Reports: 07/13/2021
Number of Days to Update: 76

Source: Tulare County Environmental Health Services Division
Telephone: 559-624-7400
Last EDR Contact: 04/14/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Varies

TUOLUMNE COUNTY:

CUPA TUOLUMNE: CUPA Facility List
Cupa facility list

Date of Government Version: 04/23/2018
Date Data Arrived at EDR: 04/25/2018
Date Made Active in Reports: 06/25/2018
Number of Days to Update: 61

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 04/14/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

VENTURA COUNTY:

BWT VENTURA: Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 12/27/2021
Date Data Arrived at EDR: 01/20/2022
Date Made Active in Reports: 04/08/2022
Number of Days to Update: 78

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 04/18/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Quarterly

LF VENTURA: Inventory of Illegal Abandoned and Inactive Sites
Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 03/23/2022
Next Scheduled EDR Contact: 07/11/2022
Data Release Frequency: No Update Planned

LUST VENTURA: Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 05/04/2022
Next Scheduled EDR Contact: 08/22/2022
Data Release Frequency: No Update Planned

MED WASTE VENTURA: Medical Waste Program List
To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 12/27/2021
Date Data Arrived at EDR: 01/20/2022
Date Made Active in Reports: 04/11/2022
Number of Days to Update: 81

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 04/18/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Quarterly

UST VENTURA: Underground Tank Closed Sites List
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 02/28/2022
Date Data Arrived at EDR: 03/08/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 86
Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 06/07/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Quarterly

YOLO COUNTY:

UST YOLO: Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 12/27/2021
Date Data Arrived at EDR: 01/04/2022
Date Made Active in Reports: 03/18/2022
Number of Days to Update: 73
Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 03/24/2022
Next Scheduled EDR Contact: 07/11/2022
Data Release Frequency: Annually

YUBA COUNTY:

CUPA YUBA: CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 01/26/2022
Date Data Arrived at EDR: 01/27/2022
Date Made Active in Reports: 04/14/2022
Number of Days to Update: 77
Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/08/2022
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 12/03/2021
Date Data Arrived at EDR: 02/11/2022
Date Made Active in Reports: 05/06/2022
Number of Days to Update: 84
Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 05/09/2022
Next Scheduled EDR Contact: 08/22/2022
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 04/10/2019
Date Made Active in Reports: 05/16/2019
Number of Days to Update: 36
Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 04/07/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/01/2019
Date Data Arrived at EDR: 10/29/2021
Date Made Active in Reports: 01/19/2022
Number of Days to Update: 82

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 04/28/2022
Next Scheduled EDR Contact: 08/08/2022
Data Release Frequency: Quarterly

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 06/30/2018
Date Data Arrived at EDR: 07/19/2019
Date Made Active in Reports: 09/10/2019
Number of Days to Update: 53

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 04/08/2022
Next Scheduled EDR Contact: 07/25/2022
Data Release Frequency: Annually

RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 11/30/2021
Date Made Active in Reports: 02/18/2022
Number of Days to Update: 80

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 05/16/2022
Next Scheduled EDR Contact: 08/29/2022
Data Release Frequency: Annually

WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 06/19/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 76

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 06/03/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Annually

Oil/Gas Pipelines

Source: Endeavor Business Media

Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by Endeavor Business Media. This information is provided on a best effort basis and Endeavor Business Media does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of Endeavor Business Media.

Electric Power Transmission Line Data

Source: Endeavor Business Media

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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:

Source: American Hospital Association, Inc.
Telephone: 312-280-5991

The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing

Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000

A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.
Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.
Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.
Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

JUNIPERO ROAD AND MCCALL BLVD
JUNIPERO RD
MENIFEE, CA 92585

TARGET PROPERTY COORDINATES

Latitude (North):	33.724079 - 33ˆ 43’ 26.68’’
Longitude (West):	117.156241 - 117ˆ 9’ 22.47’’
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	485524.7
UTM Y (Meters):	3731380.5
Elevation:	1461 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	12015913 ROMOLAND, CA
Version Date:	2018

EDR’s GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

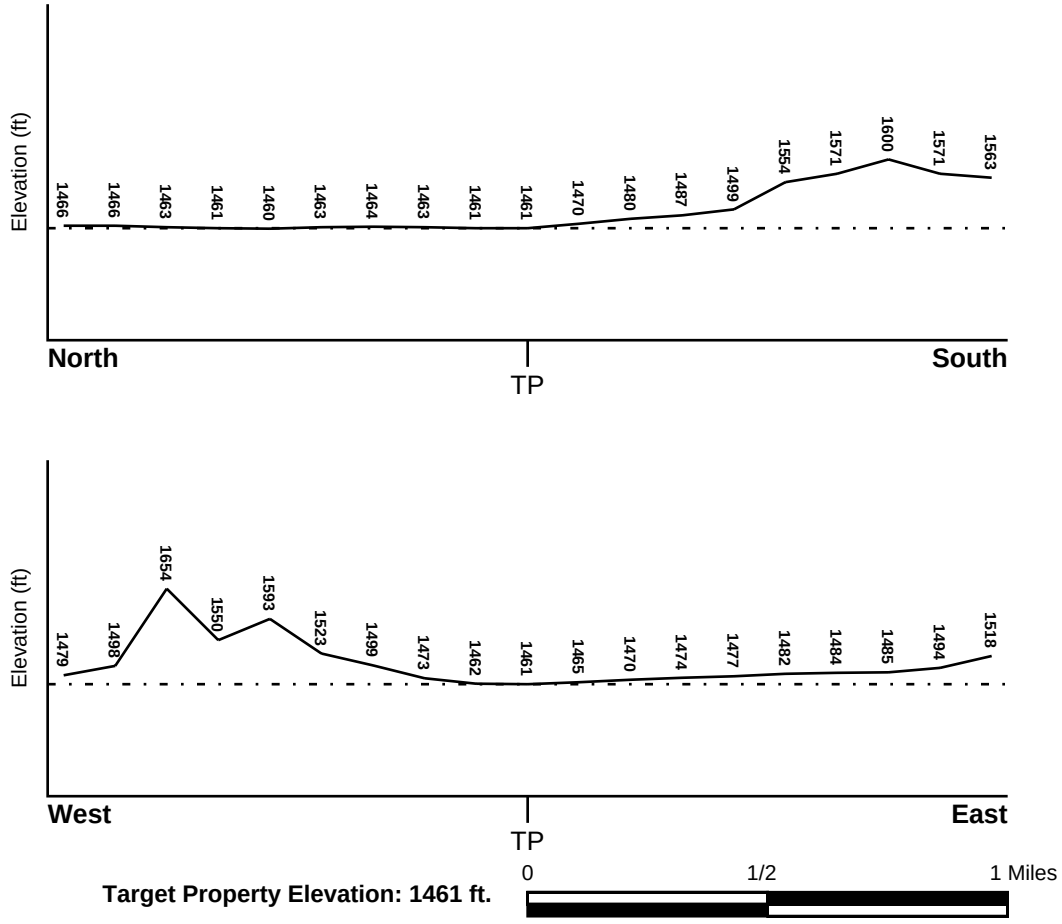
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General NNE

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Target Property Elevation: 1461 ft.

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
06065C2060H	FEMA FIRM Flood data

Additional Panels in search area:	FEMA Source Type
Not Reported	

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
NOT AVAILABLE	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

* ©1996 Site−specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

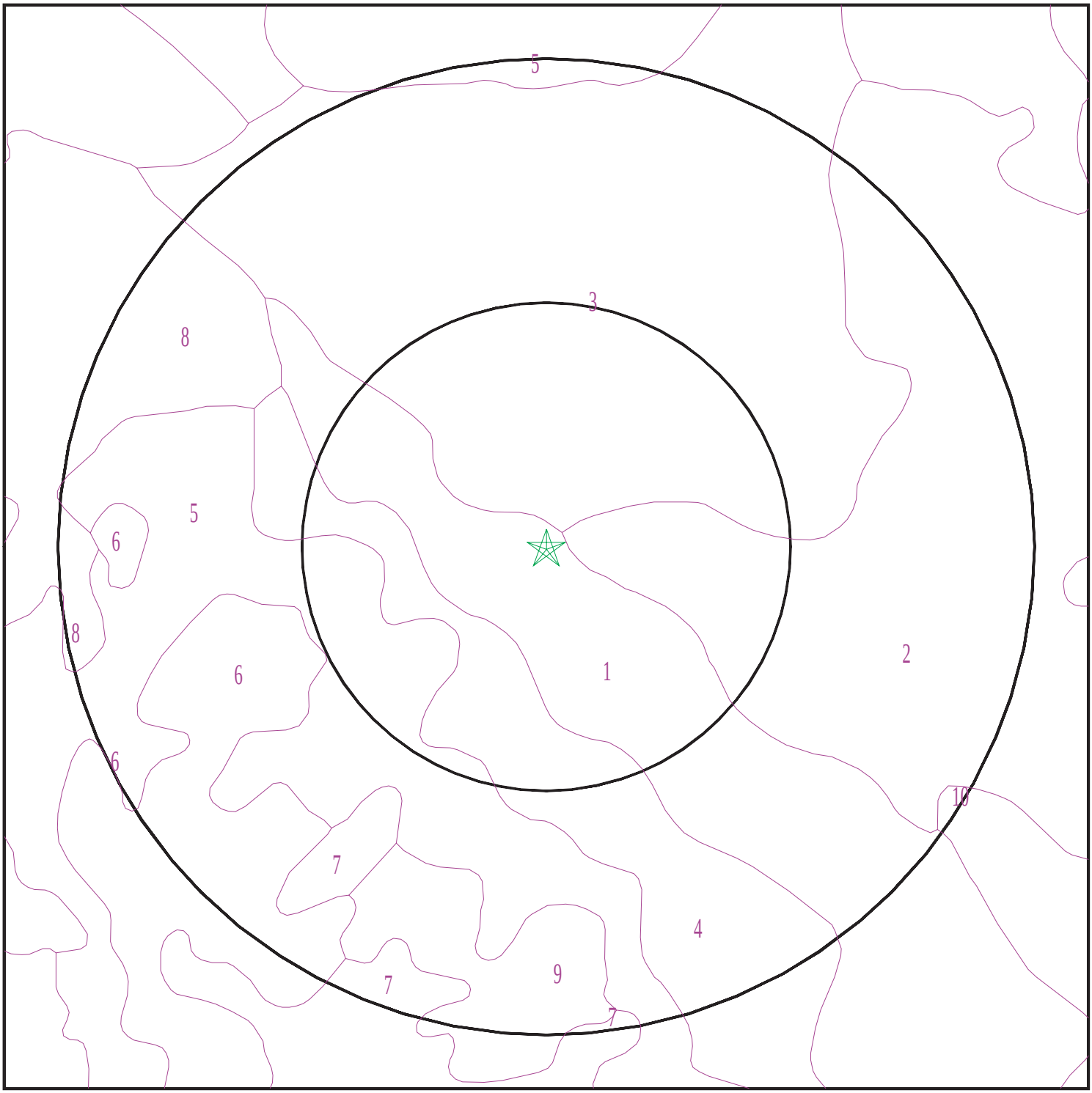
Era:	Mesozoic
System:	Cretaceous
Series:	Cretaceous granitic rocks
Code:	Kg *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Plutonic and Intrusive Rocks

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 7013948.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME:	Junipero Road and McCall Blvd	CLIENT:	Lilburn Corporation
ADDRESS:	Junipero Rd Menifee CA 92585	CONTACT:	Frank Amendola
LAT/LONG:	33.724079 / 117.156241	INQUIRY #:	7013948.2s
		DATE:	June 09, 2022 7:06 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: EXETER

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	16 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4
2	16 inches	37 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4
3	37 inches	50 inches	indurated	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
4	50 inches	59 inches	stratified sandy loam to silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4

Soil Map ID: 2

Soil Component Name: GREENFIELD

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	25 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 6.6
2	25 inches	42 inches	fine sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 6.6

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
3	42 inches	59 inches	loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 6.6
4	59 inches	72 inches	stratified loamy sand to sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 6.6

Soil Map ID: 3

Soil Component Name: EXETER

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	16 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	16 inches	37 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4
3	37 inches	50 inches	indurated	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4
4	50 inches	59 inches	stratified sandy loam to silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4

Soil Map ID: 4

Soil Component Name: EXETER

Soil Surface Texture: sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	16 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4
2	16 inches	37 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4
3	37 inches	50 inches	indurated	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4
4	50 inches	59 inches	stratified sandy loam to silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4

Soil Map ID: 5

Soil Component Name: HANFORD

Soil Surface Texture: coarse sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	coarse sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.8 Min: 5.6
2	7 inches	40 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.8 Min: 5.6
3	40 inches	59 inches	stratified loamy sand to coarse sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.8 Min: 5.6

Soil Map ID: 6

Soil Component Name: Cieneba

Soil Surface Texture: sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Somewhat excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	14 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	Not reported	Max: 0.42 Min: 0	Max: Min:
2	14 inches	22 inches	weathered bedrock	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	Not reported	Max: 0.42 Min: 0	Max: Min:

Soil Map ID: 7

Soil Component Name: MONSERATE

Soil Surface Texture: sandy loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	9 inches	18 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
3	18 inches	44 inches	indurated	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
4	44 inches	57 inches	cemented	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
5	57 inches	70 inches	loamy coarse sand	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6

Soil Map ID: 8

Soil Component Name: MONSERATE

Soil Surface Texture: sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
2	9 inches	27 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
3	27 inches	44 inches	indurated	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
4	44 inches	57 inches	cemented	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
5	57 inches	70 inches	loamy coarse sand	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6

Soil Map ID: 9

Soil Component Name: MONSERATE

Soil Surface Texture: sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
2	9 inches	27 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
3	27 inches	44 inches	indurated	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
4	44 inches	57 inches	cemented	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
5	57 inches	70 inches	loamy coarse sand	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6

Soil Map ID: 10

Soil Component Name: GARRETSON

Soil Surface Texture: very fine sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	very fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 7.8 Min: 6.1
2	9 inches	59 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 7.8 Min: 6.1

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A2	USGS40000137493	1/2 - 1 Mile NW
B5	USGS40000137521	1/2 - 1 Mile NE
C11	USGS40000137404	1/2 - 1 Mile ESE

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
C12	USGS40000137392	1/2 - 1 Mile ESE
C13	USGS40000137393	1/2 - 1 Mile ESE
C14	USGS40000137394	1/2 - 1 Mile ESE
D18	USGS40000137484	1/2 - 1 Mile ENE
E21	USGS40000137600	1/2 - 1 Mile NW

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

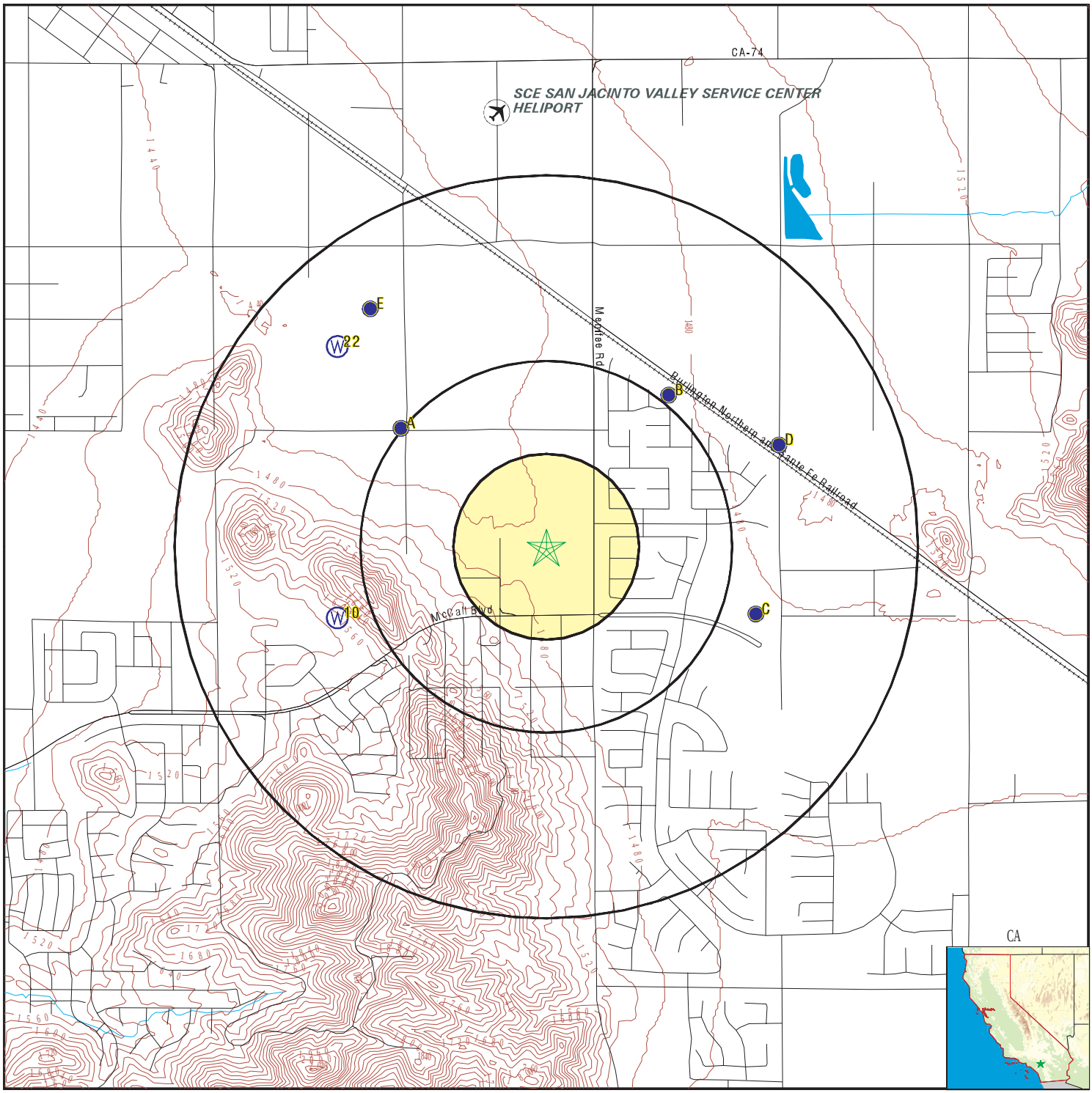
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A1	CAUSGSN00015525	1/4 - 1/2 Mile NW
B3	CADWR9000005198	1/2 - 1 Mile NE
A4	CADWR9000005185	1/2 - 1 Mile NW
C6	CADWR9000005158	1/2 - 1 Mile ESE
C7	CADWR9000005153	1/2 - 1 Mile ESE
C8	CADWR9000005152	1/2 - 1 Mile ESE
C9	CADWR9000005151	1/2 - 1 Mile ESE
10	CADWR0000012646	1/2 - 1 Mile WSW
C15	CAUSGSN00001122	1/2 - 1 Mile ESE
C16	CAUSGSN00016927	1/2 - 1 Mile ESE
C17	CAUSGSN00017426	1/2 - 1 Mile ESE
D19	CAUSGSN00009635	1/2 - 1 Mile ENE
D20	CADWR9000005181	1/2 - 1 Mile ENE
22	CADWR0000036959	1/2 - 1 Mile NW
E23	CADWR9000005235	1/2 - 1 Mile NW

PHYSICAL SETTING SOURCE MAP - 7013948.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Airports
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons

- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME:	Junipero Road and McCall Blvd	CLIENT:	Lilburn Corporation
ADDRESS:	Junipero Rd Menifee CA 92585	CONTACT:	Frank Amendola
LAT/LONG:	33.724079 / 117.156241	INQUIRY #:	7013948.2s
		DATE:	June 09, 2022 7:06 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

A1
NW
1/4 - 1/2 Mile
Lower

CA WELLS **CAUSGSN00015525**

Well ID:	USGS-334343117094401	Well Type:	UNK
Source:	United States Geological Survey		
Other Name:	USGS-334343117094401	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=USGSNEW&samp_date=&global_id=&assigned_name=USGS-334343117094401&store_num=		
GeoTracker Data:	Not Reported		

A2
NW
1/2 - 1 Mile
Lower

FED USGS **USGS40000137493**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	005S003W14P001S	Type:	Well
Description:	WELL DEPTH IS AN APPROXIMATION		
HUC:	18070202	Drainage Area:	Not Reported
Drainage Area Units:	Not Reported	Contrib Drainage Area:	Not Reported
Contrib Drainage Area Unts:	Not Reported	Aquifer:	California Coastal Basin aquifers
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	250
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

B3
NE
1/2 - 1 Mile
Higher

CA WELLS **CADWR9000005198**

State Well #:	05S03W13N001S	Station ID:	28640
Well Name:	Not Reported	Basin Name:	San Jacinto
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

A4
NW
1/2 - 1 Mile
Lower

CA WELLS **CADWR9000005185**

State Well #:	Not Reported	Station ID:	48342
Well Name:	EMWD12774	Basin Name:	San Jacinto
Well Use:	Irrigation	Well Type:	Single Well
Well Depth:	0	Well Completion Rpt #:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

B5
NE
1/2 - 1 Mile
Higher

FED USGS **USGS40000137521**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	005S003W13N001S	Type:	Well
Description:	ORIG DPTH 433 SOUNDED DEPTH 142.0 FT AS OF 5/22/95		
HUC:	18070202	Drainage Area:	Not Reported
Drainage Area Units:	Not Reported	Contrib Drainage Area:	Not Reported
Contrib Drainage Area Unts:	Not Reported	Aquifer:	California Coastal Basin aquifers
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	19770510	Well Depth:	142
Well Depth Units:	ft	Well Hole Depth:	433
Well Hole Depth Units:	ft		

Ground water levels,Number of Measurements:	3	Level reading date:	1995-09-28
Feet below surface:	52.10	Feet to sea level:	Not Reported
Note:	Not Reported		

Level reading date:	1995-06-23	Feet below surface:	52.01
Feet to sea level:	Not Reported		
Note:	A nearby site that taps the same aquifer was being pumped.		

Level reading date:	1995-05-22	Feet below surface:	52.02
Feet to sea level:	Not Reported	Note:	Not Reported

C6
ESE
1/2 - 1 Mile
Higher

CA WELLS **CADWR9000005158**

State Well #:	05S03W24F001S	Station ID:	27788
Well Name:	Not Reported	Basin Name:	San Jacinto
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

C7
ESE
1/2 - 1 Mile
Higher

CA WELLS **CADWR9000005153**

State Well #:	05S03W24F004S	Station ID:	6992
Well Name:	Not Reported	Basin Name:	San Jacinto
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

C8
ESE
1/2 - 1 Mile
Higher

CA WELLS **CADWR9000005152**

State Well #:	05S03W24F003S	Station ID:	27789
Well Name:	Not Reported	Basin Name:	San Jacinto
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

C9
ESE
1/2 - 1 Mile
Higher

CA WELLS **CADWR9000005151**

State Well #:	05S03W24F002S	Station ID:	6991
Well Name:	Not Reported	Basin Name:	San Jacinto
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

10
WSW
1/2 - 1 Mile
Higher

CA WELLS **CADWR0000012646**

Well ID:	05S03W23L001S	Well Type:	UNK
Source:	Department of Water Resources		
Other Name:	05S03W23L001S	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=05S03W23L001S&store_num=		
GeoTracker Data:	Not Reported		

C11
ESE
1/2 - 1 Mile
Higher

FED USGS **USGS40000137404**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	005S003W24F001S	Type:	Well
Description:	Not Reported	HUC:	18070202
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	19931008	Well Depth:	680.9
Well Depth Units:	ft	Well Hole Depth:	690
Well Hole Depth Units:	ft		

Ground water levels,Number of Measurements:	5	Level reading date:	1995-06-23
Feet below surface:	92.40	Feet to sea level:	Not Reported
Note:	Not Reported		

Level reading date:	1994-12-15	Feet below surface:	69.21
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1994-11-18	Feet below surface:	76.03
Feet to sea level:	Not Reported	Note:	The site had been pumped recently.
Level reading date:	1994-02-10	Feet below surface:	62.86
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1993-12-03	Feet below surface:	68.34
Feet to sea level:	Not Reported	Note:	Not Reported

C12
ESE
1/2 - 1 Mile
Higher

FED USGS **USGS40000137392**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	005S003W24F002S	Type:	Well
Description:	Not Reported	HUC:	18070202
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	19930930	Well Depth:	691
Well Depth Units:	ft	Well Hole Depth:	729
Well Hole Depth Units:	ft		

Ground water levels,Number of Measurements:	6	Level reading date:	1995-09-13
Feet below surface:	75.11	Feet to sea level:	Not Reported
Note:	Not Reported		
Level reading date:	1995-06-23	Feet below surface:	65.77
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1994-12-15	Feet below surface:	69.25
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1994-11-18	Feet below surface:	76.47
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1994-02-10	Feet below surface:	66.58
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1993-12-03	Feet below surface:	64.22
Feet to sea level:	Not Reported	Note:	Not Reported

C13
ESE
1/2 - 1 Mile
Higher

FED USGS **USGS40000137393**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	005S003W24F003S	Type:	Well
Description:	Not Reported	HUC:	18070202
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported

Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	19930930	Well Depth:	403
Well Depth Units:	ft	Well Hole Depth:	729
Well Hole Depth Units:	ft		

Ground water levels,Number of Measurements:	6	Level reading date:	1995-09-13
Feet below surface:	99.99	Feet to sea level:	Not Reported
Note:	Not Reported		
Level reading date:	1995-06-23	Feet below surface:	108.69
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1994-12-15	Feet below surface:	72.76
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1994-11-18	Feet below surface:	83.52
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1994-02-10	Feet below surface:	68.21
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1993-12-03	Feet below surface:	69.90
Feet to sea level:	Not Reported	Note:	Not Reported

C14
ESE
1/2 - 1 Mile
Higher

FED USGS **USGS40000137394**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	005S003W24F004S	Type:	Well
Description:	Not Reported	HUC:	18070202
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	19930930	Well Depth:	155.1
Well Depth Units:	ft	Well Hole Depth:	729
Well Hole Depth Units:	ft		

Ground water levels,Number of Measurements:	6	Level reading date:	1995-09-13
Feet below surface:	56.86	Feet to sea level:	Not Reported
Note:	Not Reported		
Level reading date:	1995-06-23	Feet below surface:	57.00
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1994-12-15	Feet below surface:	57.06
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1994-11-18	Feet below surface:	57.44
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1994-02-10	Feet below surface:	57.40
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1993-12-03	Feet below surface:	58.06

Feet to sea level:	Not Reported	Note:	Not Reported

C15
ESE **CA WELLS** **CAUSGSN00001122**
1/2 - 1 Mile
Higher

Well ID:	USGS-334317117084303	Well Type:	UNK
Source:	United States Geological Survey		
Other Name:	USGS-334317117084303	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=USGSNEW&samp_date=&global_id=&assigned_name=USGS-334317117084303&store_num=		
GeoTracker Data:	Not Reported		

C16
ESE **CA WELLS** **CAUSGSN00016927**
1/2 - 1 Mile
Higher

Well ID:	USGS-334317117084301	Well Type:	UNK
Source:	United States Geological Survey		
Other Name:	USGS-334317117084301	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=USGSNEW&samp_date=&global_id=&assigned_name=USGS-334317117084301&store_num=		
GeoTracker Data:	Not Reported		

C17
ESE **CA WELLS** **CAUSGSN00017426**
1/2 - 1 Mile
Higher

Well ID:	USGS-334317117084302	Well Type:	UNK
Source:	United States Geological Survey		
Other Name:	USGS-334317117084302	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=USGSNEW&samp_date=&global_id=&assigned_name=USGS-334317117084302&store_num=		
GeoTracker Data:	Not Reported		

D18
ENE **FED USGS** **USGS40000137484**
1/2 - 1 Mile
Higher

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	005S003W24C001S	Type:	Well
Description:	Not Reported	HUC:	18070202
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	19770525	Well Depth:	505
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	1	Level reading date:	1994-01-04
Feet below surface:	72.56	Feet to sea level:	Not Reported
Note:	Not Reported		

D19
ENE **CA WELLS** **CAUSGSN00009635**
1/2 - 1 Mile
Higher

Well ID:	USGS-334341117084101	Well Type:	UNK
Source:	United States Geological Survey		
Other Name:	USGS-334341117084101	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=USGSNEW&samp_date=&global_id=&assigned_name=USGS-334341117084101&store_num=		
GeoTracker Data:	Not Reported		

D20
ENE **CA WELLS** **CADWR9000005181**
1/2 - 1 Mile
Higher

State Well #:	05S03W24C001S	Station ID:	6990
Well Name:	EMWD11157	Basin Name:	San Jacinto
Well Use:	Irrigation	Well Type:	Single Well
Well Depth:	415	Well Completion Rpt #:	Not Reported

E21
NW **FED USGS** **USGS40000137600**
1/2 - 1 Mile
Lower

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	005S003W14L001S	Type:	Well
Description:	Not Reported	HUC:	18070202
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	19800120	Well Depth:	200
Well Depth Units:	ft	Well Hole Depth:	200
Well Hole Depth Units:	ft		

Ground water levels,Number of Measurements:	1	Level reading date:	1995-06-05
Feet below surface:	71.83	Feet to sea level:	Not Reported
Note:	Not Reported		

22
NW **CA WELLS** **CADWR0000036959**
1/2 - 1 Mile
Lower

Well ID:	05S03W14P001S	Well Type:	UNK
Source:	Department of Water Resources		
Other Name:	05S03W14P001S	GAMA PFAS Testing:	Not Reported

Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=05S03W14P001S&store_num=

GeoTracker Data: Not Reported

E23
NW
1/2 - 1 Mile
Lower

CA WELLS **CADWR9000005235**

State Well #:	05S03W14L001S	Station ID:	6313
Well Name:	Not Reported	Basin Name:	San Jacinto
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
92585	6	0

Federal EPA Radon Zone for RIVERSIDE County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for RIVERSIDE COUNTY, CA

Number of sites tested: 12

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.117 pCi/L	100%	0%	0%
Living Area - 2nd Floor	0.450 pCi/L	100%	0%	0%
Basement	1.700 pCi/L	100%	0%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

OTHER STATE DATABASE INFORMATION

Groundwater Ambient Monitoring & Assessment Program
State Water Resources Control Board
Telephone: 916-341-5577
The GAMA Program is Californias comprehensive groundwater quality monitoring program. GAMA collects data by testing the untreated, raw water in different types of wells for naturally-occurring and man-made chemicals. The GAMA data includes Domestic, Monitoring and Municipal well types from the following sources, Department of Water Resources, Department of Heath Services, EDF, Agricultural Lands, Lawrence Livermore National Laboratory, Department of Pesticide Regulation, United States Geological Survey, Groundwater Ambient Monitoring and Assessment Program and Local Groundwater Projects.

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Public Health
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

California Oil and Gas Well Locations
Source: Dept of Conservation, Geologic Energy Management Division
Telephone: 916-323-1779
Oil and Gas well locations in the state.

California Earthquake Fault Lines
Source: California Division of Mines and Geology
The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

RADON

State Database: CA Radon
Source: Department of Public Health
Telephone: 916-210-8558
Radon Database for California

PHYSICAL SETTING SOURCE RECORDS SEARCHED

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

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APPENDIX E-1
VAPOR ENCROACHMENT SCREENING

Junipero Road and McCall Blvd
Junipero Rd
Menifee, CA 92585

Inquiry Number: 7013948.2s
June 10, 2022

EDR Vapor Encroachment Screen

Prepared using EDR's Vapor Encroachment Worksheet

EDR® Environmental Data Resources Inc

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by EDR. The report was designed to assist parties seeking to meet the search requirements of the ASTM Standard Practice for Assessment of Vapor Encroachment into Structures on Property Involved in Real Estate Transactions (E 2600).

STANDARD ENVIRONMENTAL RECORDS	Default Area of Concern (Miles)*	property	1/10	> 1/10
Lists of Federal NPL (Superfund) sites	1.0	0	0	0
Lists of Federal Delisted NPL sites	1.0	0	0	0
Lists of Federal sites subject to CERCLA removals and CERCLA orders	0.5	0	0	0
Lists of Federal CERCLA sites with NFRAP	0.5	0	0	0
Lists of Federal RCRA facilities undergoing Corrective Action	1.0	0	0	0
Lists of Federal RCRA TSD facilities	0.5	0	0	0
Lists of Federal RCRA generators	0.25	0	0	0
Federal institutional controls / engineering controls registries	0.5	0	0	0
Federal ERNS list	0.001	0	0	-
Lists of state- and tribal (Superfund) equivalent sites	1.0	0	0	0
Lists of state- and tribal hazardous waste facilities	1.0	0	0	2
Lists of state and tribal landfills and solid waste disposal facilities	0.5	0	0	0
Lists of state and tribal leaking storage tanks	0.5	0	0	0
Lists of state and tribal registered storage tanks	0.25	0	0	0
State and tribal institutional control / engineering control registries	not searched	-	-	-
Lists of state and tribal voluntary cleanup sites	0.5	0	0	0
Lists of state and tribal brownfield sites	0.5	0	0	0

ADDITIONAL ENVIRONMENTAL RECORDS				
Local Brownfield lists	0.5	0	0	0
Local Lists of Landfill / Solid Waste Disposal Sites	0.5	0	0	0
Local Lists of Hazardous waste / Contaminated Sites	1.0	0	0	2
Local Lists of Registered Storage Tanks	0.25	0	0	0
Local Land Records	0.5	0	0	0
Records of Emergency Release Reports	0.5	0	0	0
Other Ascertainable Records	1.0	0	0	0

EDR HIGH RISK HISTORICAL RECORDS				
EDR Exclusive Records	1.0	0	0	0
Exclusive Recovered Govt. Archives	0.001	0	0	-

EXECUTIVE SUMMARY

EDR RECOVERED GOVERNMENT ARCHIVES

EDR Exclusive Records	1.0	0	0	0
Exclusive Recovered Govt. Archives	0.001	0	0	-

*The Default Area of Concern may be adjusted by the environmental professional using experience and professional judgement. Each category may include several databases, and each database may have a different distance. A list of individual databases is provided at the back of this report.

EXECUTIVE SUMMARY

TARGET PROPERTY INFORMATION

ADDRESS

JUNIPERO ROAD AND MCCALL BLVD
JUNIPERO RD
MENIFEE, CA 92585

COORDINATES

Latitude (North):	33.724079 - 33° 43′ 26.684875″
Longitude (West):	117.156241 - 117° 9′ 22.472534″
Elevation:	1461 ft. above sea level

EXECUTIVE SUMMARY

SEARCH RESULTS

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Name	Address	Dist/Dir	Map ID	Page
MENIFEE VALLEY RANCH SCHOOL NO. 1	MCCALL BOULEVARD/MENIFEE LOOP W	1/10 - 1/3 SE	▲ 1	8
ENVIROSTOR: ENVIROSTOR SCH: SCH				
MCCALL MESA K-8 SCHOOL	MCCALL BOULEVARD/JUNIPERO ROAD	1/10 - 1/3 SSW	▲ 2	11
ENVIROSTOR: ENVIROSTOR SCH: SCH				

ADDITIONAL ENVIRONMENTAL RECORDS

Name	Address	Dist/Dir	Map ID	Page
MENIFEE VALLEY RANCH SCHOOL NO. 1	MCCALL BOULEVARD/MENIFEE LOOP W	1/10 - 1/3 SE	▲ 1	8
ENVIROSTOR: ENVIROSTOR SCH: SCH				
MCCALL MESA K-8 SCHOOL	MCCALL BOULEVARD/JUNIPERO ROAD	1/10 - 1/3 SSW	▲ 2	11
ENVIROSTOR: ENVIROSTOR SCH: SCH				

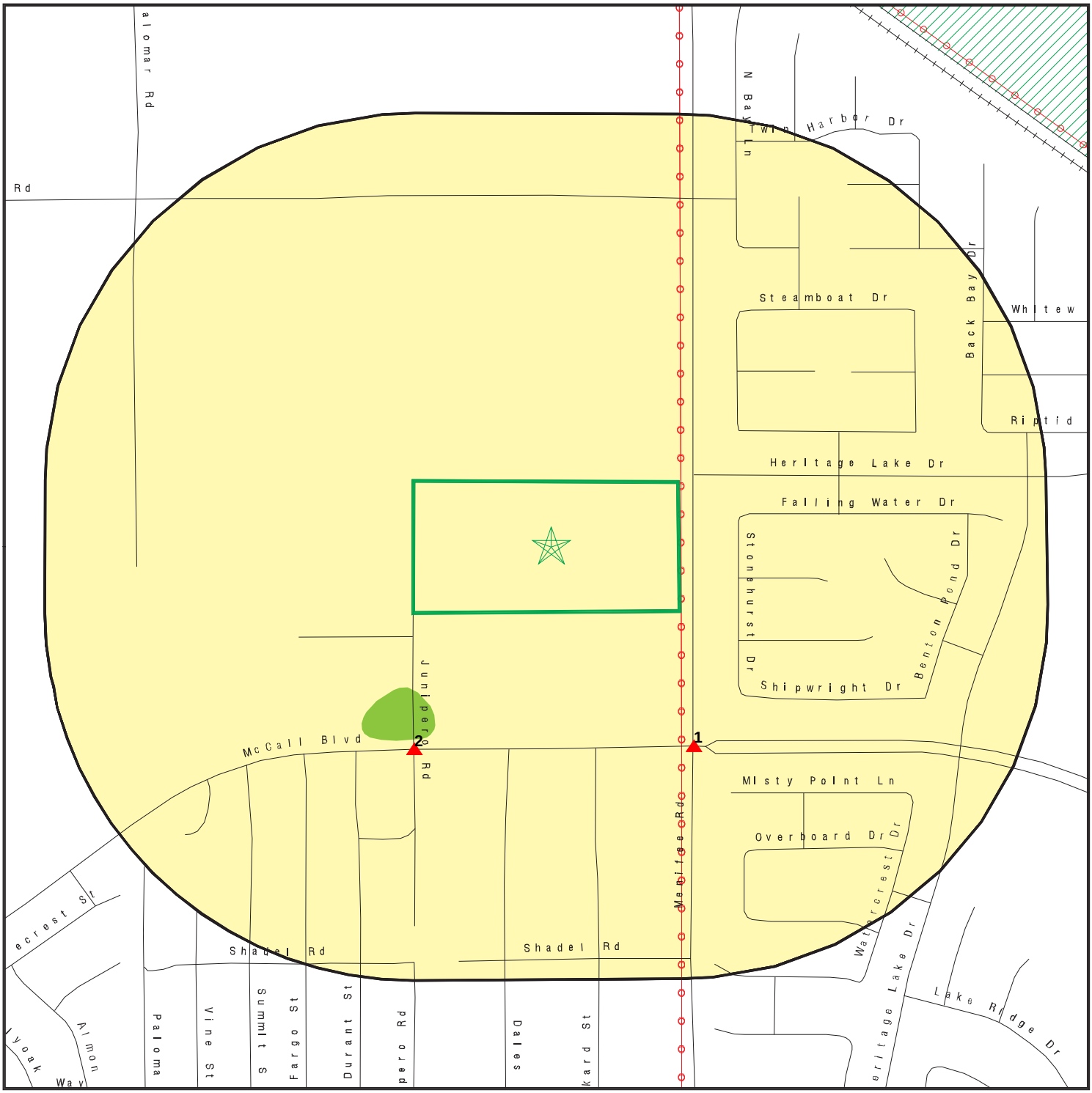
EDR HIGH RISK HISTORICAL RECORDS

Name	Address	Dist/Dir	Map ID	Page
Not Reported				

EDR RECOVERED GOVERNMENT ARCHIVES

Name	Address	Dist/Dir	Map ID	Page
Not Reported				

PRIMARY MAP - 7013948.2S



0 300 1/3 1/2 Miles

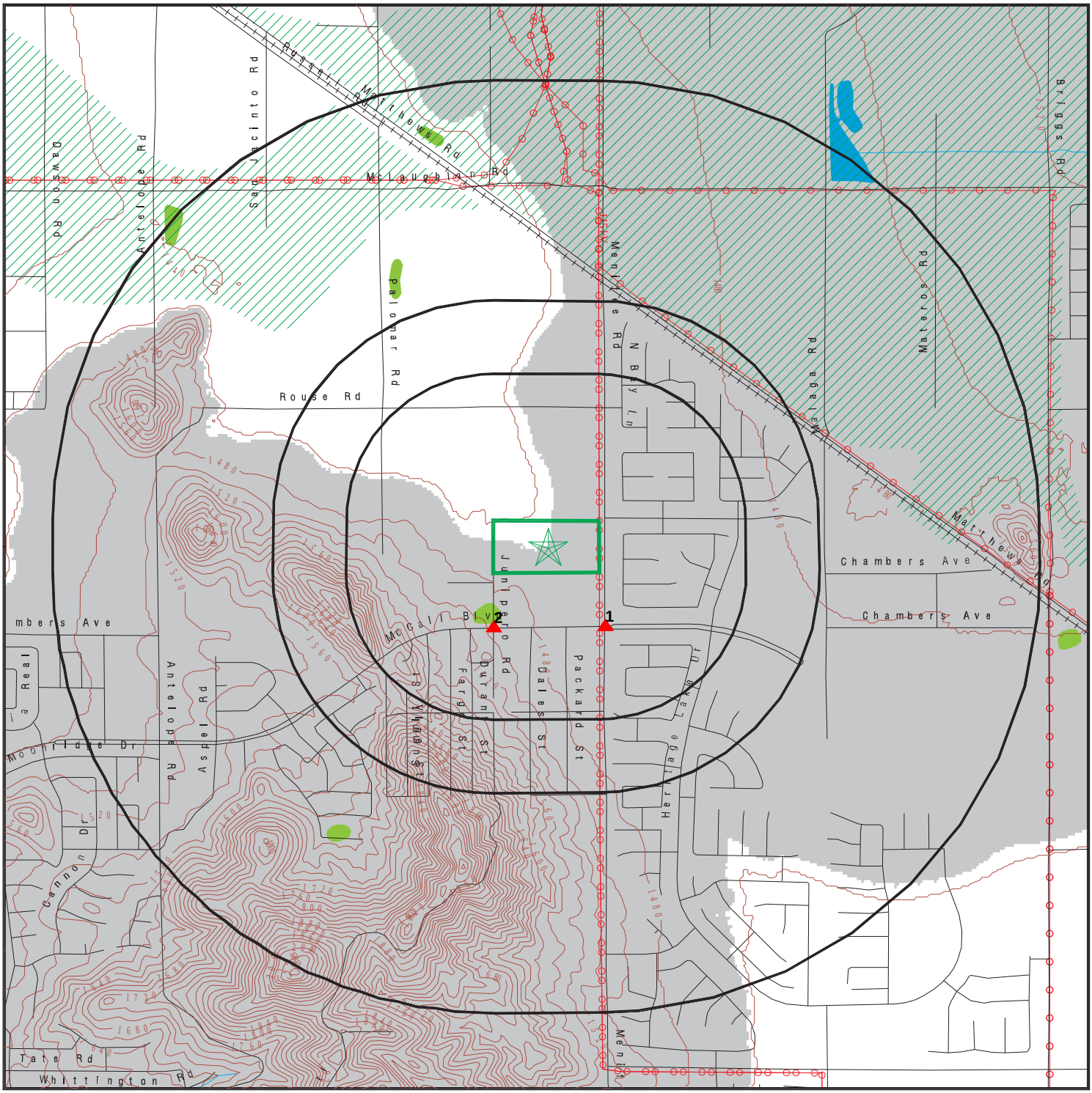
- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Junipero Road and McCall Blvd ADDRESS: Junipero Rd Menifee CA 92585 LAT/LONG: 33.724079 / 117.156241	CLIENT: Lilburn Corporation CONTACT: Frank Amendola INQUIRY #: 7013948.2s DATE: June 09, 2022 7:06 pm

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SECONDARY MAP - 7013948.2S



0 1/3 1/2 1 Miles

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- National Wetland Inventory
- State Wetlands
- Upgradient Area
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Junipero Road and McCall Blvd	CLIENT: Lilburn Corporation
ADDRESS: Junipero Rd Menifee CA 92585	CONTACT: Frank Amendola
LAT/LONG: 33.724079 / 117.156241	INQUIRY #: 7013948.2s DATE: June 09, 2022 7:05 pm

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MAP FINDINGS

LEGEND

FACILITY NAME **FACILITY ADDRESS, CITY, ST, ZIP**		EDR SITE ID NUMBER
◆ **MAP ID#**	Direction Distance Range (Distance feet / miles) Relative Elevation Feet Above Sea Level	ASTM 2600 Record Sources found in this report. Each database searched has been assigned to one or more categories. For detailed information about categorization, see the section of the report Records Searched and Currency.

Worksheet:

Comments:
Comments may be added on the online Vapor Encroachment Worksheet.

DATABASE ACRONYM: Applicable categories (A hoverbox with database description).

MENIFEE VALLEY RANCH SCHOOL NO. 1 MCCALL BOULEVARD/MENIFEE LOOP W, ROMOLAND, CA, 92585		S106044339
▲ 1	SE 1/10 - 1/3 (659 ft. / 0.125 mi.) 7 ft. Higher Elevation 1468 ft. Above Sea Level	Lists of state- and tribal hazardous waste facilities Local Lists of Hazardous waste / Contaminated Sites

Worksheet:

ENVIROSTOR: Lists of state- and tribal hazardous waste facilities

Name:	MENIFEE VALLEY RANCH SCHOOL NO. 1
Address:	MCCALL BOULEVARD/MENIFEE LOOP W
City,State,Zip:	ROMOLAND, CA 92585
Facility ID:	33010076
Status:	No Further Action
Status Date:	12/10/2004
Site Code:	404479
Site Type:	School Investigation
Site Type Detailed:	School
Acres:	15
NPL:	NO
Regulatory Agencies:	DTSC
Lead Agency:	DTSC
Program Manager:	Amit Pathak
Supervisor:	Shahir Haddad
Division Branch:	Southern California Schools & Brownfields Outreach
Assembly:	67
Senate:	23
Special Program:	Not Reported
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	School District
Latitude:	33.7214
Longitude:	-117.1540

MENIFEE VALLEY RANCH SCHOOL NO. 1, MCCALL BOULEVARD/MENIFEE LOOP W, ROMOLAND, CA 92585 (Continued)

APN:	NONE SPECIFIED
Past Use:	AGRICULTURAL - ROW CROPS
Potential COC:	Arsenic DDD DDE DDT
Confirmed COC:	NONE SPECIFIED
Potential Description:	SOIL
Alias Name:	MENIFEE VALLEY RANCH SCHOOL NO. 1
Alias Type:	Alternate Name
Alias Name:	ROMOLAND ELEMENTARY SCHOOL DISTRICT
Alias Type:	Alternate Name
Alias Name:	ROMOLAND SD-PRPSD MNIFEE VLY RNCH SCL #1
Alias Type:	Alternate Name
Alias Name:	404479
Alias Type:	Project Code (Site Code)
Alias Name:	33010076
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not Reported
Completed Document Type:	Cost Recovery Closeout Memo
Completed Date:	12/10/2004
Comments:	Not Reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not Reported
Completed Document Type:	Environmental Oversight Agreement
Completed Date:	09/18/2003
Comments:	Not Reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not Reported
Completed Document Type:	Preliminary Endangerment Assessment Report
Completed Date:	09/24/2004
Comments:	Not Reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not Reported
Completed Document Type:	Preliminary Endangerment Assessment Workplan
Completed Date:	04/21/2004
Comments:	Not Reported
Future Area Name:	Not Reported
Future Sub Area Name:	Not Reported
Future Document Type:	Not Reported
Future Due Date:	Not Reported
Schedule Area Name:	Not Reported
Schedule Sub Area Name:	Not Reported
Schedule Document Type:	Not Reported
Schedule Due Date:	Not Reported
Schedule Revised Date:	Not Reported

SCH: Local Lists of Hazardous waste / Contaminated Sites

MENIFEE VALLEY RANCH SCHOOL NO. 1, MCCALL BOULEVARD/MENIFEE LOOP W, ROMOLAND, CA 92585 (Continued)

Name:	MENIFEE VALLEY RANCH SCHOOL NO. 1
Address:	MCCALL BOULEVARD/MENIFEE LOOP W
City,State,Zip:	ROMOLAND, CA 92585
Facility ID:	33010076
Site Type:	School Investigation
Site Type Detail:	School
Site Mgmt. Req.:	NONE SPECIFIED
Acres:	15
National Priorities List:	NO
Cleanup Oversight Agencies:	DTSC
Lead Agency:	DTSC
Lead Agency Description:	* DTSC
Project Manager:	Amit Pathak
Supervisor:	Shahir Haddad
Division Branch:	Southern California Schools & Brownfields Outreach
Site Code:	404479
Assembly:	67
Senate:	23
Special Program Status:	Not Reported
Status:	No Further Action
Status Date:	12/10/2004
Restricted Use:	NO
Funding:	School District
Latitude:	33.7214
Longitude:	-117.1540
APN:	NONE SPECIFIED
Past Use:	AGRICULTURAL - ROW CROPS
Potential COC:	Arsenic, DDD, DDE, DDT
Confirmed COC:	NONE SPECIFIED
Potential Description:	SOIL
Alias Name:	MENIFEE VALLEY RANCH SCHOOL NO. 1
Alias Type:	Alternate Name
Alias Name:	ROMOLAND ELEMENTARY SCHOOL DISTRICT
Alias Type:	Alternate Name
Alias Name:	ROMOLAND SD-PRPSD MNIFEE VLY RNCH SCL #1
Alias Type:	Alternate Name
Alias Name:	404479
Alias Type:	Project Code (Site Code)
Alias Name:	33010076
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not Reported
Completed Document Type:	Cost Recovery Closeout Memo
Completed Date:	12/10/2004
Comments:	Not Reported
Completed Area Name:	PROJECT WIDE

MENIFEE VALLEY RANCH SCHOOL NO. 1, MCCALL BOULEVARD/MENIFEE LOOP W, ROMOLAND, CA 92585 (Continued)

Completed Sub Area Name:	Not Reported
Completed Document Type:	Environmental Oversight Agreement
Completed Date:	09/18/2003
Comments:	Not Reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not Reported
Completed Document Type:	Preliminary Endangerment Assessment Report
Completed Date:	09/24/2004
Comments:	Not Reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not Reported
Completed Document Type:	Preliminary Endangerment Assessment Workplan
Completed Date:	04/21/2004
Comments:	Not Reported
Future Area Name:	Not Reported
Future Sub Area Name:	Not Reported
Future Document Type:	Not Reported
Future Due Date:	Not Reported
Schedule Area Name:	Not Reported
Schedule Sub Area Name:	Not Reported
Schedule Document Type:	Not Reported
Schedule Due Date:	Not Reported
Schedule Revised Date:	Not Reported

MCCALL MESA K-8 SCHOOL MCCALL BOULEVARD/JUNIPERO ROAD, ROMOLAND, CA, 92586		S105628773	
▲ 2	SSW 1/10 - 1/3	(661 ft. / 0.125 mi.)	Lists of state- and tribal hazardous waste facilities Local Lists of Hazardous waste / Contaminated Sites
	36 ft. Higher Elevation	1497 ft. Above Sea Level	

Worksheet:

ENVIROSTOR: Lists of state- and tribal hazardous waste facilities

Name:	MCCALL MESA K-8 SCHOOL
Address:	MCCALL BOULEVARD/JUNIPERO ROAD
City,State,Zip:	ROMOLAND, CA 92586
Facility ID:	33010066
Status:	No Further Action
Status Date:	04/18/2003
Site Code:	404388
Site Type:	School Investigation
Site Type Detailed:	School
Acres:	30.04
NPL:	NO
Regulatory Agencies:	SMBRP
Lead Agency:	SMBRP
Program Manager:	Not Reported

MCCALL MESA K-8 SCHOOL, MCCALL BOULEVARD/JUNIPERO ROAD, ROMOLAND, CA 92586 (Continued)

Supervisor:	Javier Hinojosa
Division Branch:	Southern California Schools & Brownfields Outreach
Assembly:	67
Senate:	23
Special Program:	Not Reported
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	School District
Latitude:	33.71149
Longitude:	-117.1956
APN:	NONE SPECIFIED
Past Use:	AGRICULTURAL - ROW CROPS
Potential COC:	Lead Zinc
Confirmed COC:	30013-NO 30594-NO
Potential Description:	SOIL, SV
Alias Name:	MCCALL MESA K-8 SCHOOL
Alias Type:	Alternate Name
Alias Name:	ROMOLAND ELEMENTARY SCHOOL DISTRICT
Alias Type:	Alternate Name
Alias Name:	ROMOLAND SD-MCCALL-MESA K-8
Alias Type:	Alternate Name
Alias Name:	404388
Alias Type:	Project Code (Site Code)
Alias Name:	33010066
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not Reported
Completed Document Type:	Cost Recovery Closeout Memo
Completed Date:	04/18/2003
Comments:	Not Reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not Reported
Completed Document Type:	Environmental Oversight Agreement
Completed Date:	10/28/2002
Comments:	Not Reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not Reported
Completed Document Type:	Preliminary Endangerment Assessment Report
Completed Date:	04/17/2003
Comments:	Not Reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not Reported
Completed Document Type:	Phase 1
Completed Date:	09/27/2002
Comments:	Not Reported
Completed Area Name:	PROJECT WIDE

MCCALL MESA K-8 SCHOOL, MCCALL BOULEVARD/JUNIPERO ROAD, ROMOLAND, CA 92586 (Continued)

Completed Sub Area Name:	Not Reported
Completed Document Type:	Technical Report
Completed Date:	12/24/2002
Comments:	Not Reported
Future Area Name:	Not Reported
Future Sub Area Name:	Not Reported
Future Document Type:	Not Reported
Future Due Date:	Not Reported
Schedule Area Name:	Not Reported
Schedule Sub Area Name:	Not Reported
Schedule Document Type:	Not Reported
Schedule Due Date:	Not Reported
Schedule Revised Date:	Not Reported

SCH: Local Lists of Hazardous waste / Contaminated Sites

Name:	MCCALL MESA K-8 SCHOOL
Address:	MCCALL BOULEVARD/JUNIPERO ROAD
City,State,Zip:	ROMOLAND, CA 92586
Facility ID:	33010066
Site Type:	School Investigation
Site Type Detail:	School
Site Mgmt. Req.:	NONE SPECIFIED
Acres:	30.04
National Priorities List:	NO
Cleanup Oversight Agencies:	SMBRP
Lead Agency:	SMBRP
Lead Agency Description:	DTSC - Site Cleanup Program
Project Manager:	Not Reported
Supervisor:	Javier Hinojosa
Division Branch:	Southern California Schools & Brownfields Outreach
Site Code:	404388
Assembly:	67
Senate:	23
Special Program Status:	Not Reported
Status:	No Further Action
Status Date:	04/18/2003
Restricted Use:	NO
Funding:	School District
Latitude:	33.71149
Longitude:	-117.1956
APN:	NONE SPECIFIED
Past Use:	AGRICULTURAL - ROW CROPS
Potential COC:	Lead, Zinc
Confirmed COC:	30013-NO, 30594-NO
Potential Description:	SOIL, SV
Alias Name:	MCCALL MESA K-8 SCHOOL
Alias Type:	Alternate Name
Alias Name:	ROMOLAND ELEMENTARY SCHOOL DISTRICT

MCCALL MESA K-8 SCHOOL, MCCALL BOULEVARD/JUNIPERO ROAD, ROMOLAND, CA 92586 (Continued)

Alias Type:	Alternate Name
Alias Name:	ROMOLAND SD-MCCALL-MESA K-8
Alias Type:	Alternate Name
Alias Name:	404388
Alias Type:	Project Code (Site Code)
Alias Name:	33010066
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not Reported
Completed Document Type:	Cost Recovery Closeout Memo
Completed Date:	04/18/2003
Comments:	Not Reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not Reported
Completed Document Type:	Environmental Oversight Agreement
Completed Date:	10/28/2002
Comments:	Not Reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not Reported
Completed Document Type:	Preliminary Endangerment Assessment Report
Completed Date:	04/17/2003
Comments:	Not Reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not Reported
Completed Document Type:	Phase 1
Completed Date:	09/27/2002
Comments:	Not Reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not Reported
Completed Document Type:	Technical Report
Completed Date:	12/24/2002
Comments:	Not Reported
Future Area Name:	Not Reported
Future Sub Area Name:	Not Reported
Future Document Type:	Not Reported
Future Due Date:	Not Reported
Schedule Area Name:	Not Reported
Schedule Sub Area Name:	Not Reported
Schedule Document Type:	Not Reported
Schedule Due Date:	Not Reported
Schedule Revised Date:	Not Reported

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
ENVIRONMENTAL RECORDS						
Federal NPL site list						
US	NPL	National Priority List	EPA	04/27/2022	05/05/2022	05/31/2022
US	Proposed NPL	Proposed National Priority List Sites	EPA	04/27/2022	05/05/2022	05/31/2022
US	NPL LIENS	Federal Superfund Liens	EPA	10/15/1991	02/02/1994	03/30/1994
Federal CERCLIS list						
US	SEMS	Superfund Enterprise Management System	EPA	04/27/2022	05/05/2022	05/31/2022
Federal RCRA CORRACTS facilities list						
US	CORRACTS	Corrective Action Report	EPA	02/28/2022	03/02/2022	03/17/2022
Federal RCRA TSD facilities list						
US	RCRA-TSDF	RCRA - Treatment, Storage and Disposal	Environmental Protection Agency	02/28/2022	03/02/2022	03/17/2022
Federal RCRA generators list						
US	RCRA-LQG	RCRA - Large Quantity Generators	Environmental Protection Agency	02/28/2022	03/02/2022	03/17/2022
US	RCRA-SQG	RCRA - Small Quantity Generators	Environmental Protection Agency	02/28/2022	03/02/2022	03/17/2022
US	RCRA-VSQG	RCRA - Very Small Quantity Generators (Formerly Conditionall	Environmental Protection Agency	02/28/2022	03/02/2022	03/17/2022
Federal institutional controls / engineering controls registries						
US	LUCIS	Land Use Control Information System	Department of the Navy	02/08/2022	02/11/2022	05/10/2022
US	US ENG CONTROLS	Engineering Controls Sites List	Environmental Protection Agency	02/21/2022	02/23/2022	05/24/2022
US	US INST CONTROLS	Institutional Controls Sites List	Environmental Protection Agency	02/21/2022	02/23/2022	05/24/2022
Federal ERNS list						
US	ERNS	Emergency Response Notification System	National Response Center, United States Coast	12/31/2021	03/01/2022	03/10/2022
State and tribal - equivalent NPL						
CA	RESPONSE	State Response Sites	Department of Toxic Substances Control	01/24/2022	01/25/2022	04/13/2022
State and tribal - equivalent CERCLIS						
CA	ENVIROSTOR	EnviroStor Database	Department of Toxic Substances Control	01/24/2022	01/25/2022	04/13/2022
State and tribal landfill / solid waste disposal						
CA	SWF/LF (SWIS)	Solid Waste Information System	Department of Resources Recycling and Recover	02/07/2022	02/08/2022	05/05/2022
State and tribal leaking storage tank lists						
CA	LUST REG 6L	Leaking Underground Storage Tank Case Listing	California Regional Water Quality Control Boa	09/09/2003	09/10/2003	10/07/2003
CA	LUST REG 9	Leaking Underground Storage Tank Report	California Regional Water Quality Control Boa	03/01/2001	04/23/2001	05/21/2001
CA	LUST REG 8	Leaking Underground Storage Tanks	California Regional Water Quality Control Boa	02/14/2005	02/15/2005	03/28/2005
CA	LUST REG 7	Leaking Underground Storage Tank Case Listing	California Regional Water Quality Control Boa	02/26/2004	02/26/2004	03/24/2004
CA	LUST REG 5	Leaking Underground Storage Tank Database	California Regional Water Quality Control Boa	07/01/2008	07/22/2008	07/31/2008
CA	LUST REG 4	Underground Storage Tank Leak List	California Regional Water Quality Control Boa	09/07/2004	09/07/2004	10/12/2004
CA	LUST REG 3	Leaking Underground Storage Tank Database	California Regional Water Quality Control Boa	05/19/2003	05/19/2003	06/02/2003

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
CA	LUST REG 2	Fuel Leak List	California Regional Water Quality Control Boa	09/30/2004	10/20/2004	11/19/2004
CA	LUST REG 1	Active Toxic Site Investigation	California Regional Water Quality Control Boa	02/01/2001	02/28/2001	03/29/2001
CA	LUST REG 6V	Leaking Underground Storage Tank Case Listing	California Regional Water Quality Control Boa	06/07/2005	06/07/2005	06/29/2005
CA	LUST	Leaking Underground Fuel Tank Report (GEOTRACKER)	State Water Resources Control Board	05/23/2022	05/23/2022	05/24/2022
US	INDIAN LUST R10	Leaking Underground Storage Tanks on Indian Land	EPA Region 10	10/12/2021	11/15/2021	02/08/2022
US	INDIAN LUST R8	Leaking Underground Storage Tanks on Indian Land	EPA Region 8	10/12/2021	11/15/2021	02/08/2022
US	INDIAN LUST R6	Leaking Underground Storage Tanks on Indian Land	EPA Region 6	10/12/2021	11/15/2021	02/08/2022
US	INDIAN LUST R5	Leaking Underground Storage Tanks on Indian Land	EPA, Region 5	10/12/2021	11/15/2021	02/08/2022
US	INDIAN LUST R9	Leaking Underground Storage Tanks on Indian Land	Environmental Protection Agency	10/12/2021	11/15/2021	02/08/2022
US	INDIAN LUST R4	Leaking Underground Storage Tanks on Indian Land	EPA Region 4	05/28/2021	06/22/2021	09/20/2021
US	INDIAN LUST R7	Leaking Underground Storage Tanks on Indian Land	EPA Region 7	10/12/2021	11/15/2021	02/08/2022
US	INDIAN LUST R1	Leaking Underground Storage Tanks on Indian Land	EPA Region 1	04/28/2021	06/11/2021	09/07/2021
CA	CPS-SLIC	Statewide SLIC Cases (GEOTRACKER)	State Water Resources Control Board	05/23/2022	05/23/2022	05/24/2022
CA	SLIC REG 1	Active Toxic Site Investigations	California Regional Water Quality Control Boa	04/03/2003	04/07/2003	04/25/2003
CA	SLIC REG 2	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	Regional Water Quality Control Board San Fran	09/30/2004	10/20/2004	11/19/2004
CA	SLIC REG 3	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	California Regional Water Quality Control Boa	05/18/2006	05/18/2006	06/15/2006
CA	SLIC REG 4	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	Region Water Quality Control Board Los Angele	11/17/2004	11/18/2004	01/04/2005
CA	SLIC REG 5	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	Regional Water Quality Control Board Central	04/01/2005	04/05/2005	04/21/2005
CA	SLIC REG 6V	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	Regional Water Quality Control Board, Victorv	05/24/2005	05/25/2005	06/16/2005
CA	SLIC REG 6L	SLIC Sites	California Regional Water Quality Control Boa	09/07/2004	09/07/2004	10/12/2004
CA	SLIC REG 7	SLIC List	California Regional Quality Control Board, Co	11/24/2004	11/29/2004	01/04/2005
CA	SLIC REG 8	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	California Region Water Quality Control Board	04/03/2008	04/03/2008	04/14/2008
CA	SLIC REG 9	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	California Regional Water Quality Control Boa	09/10/2007	09/11/2007	09/28/2007
State and tribal registered storage tank lists						
CA	UST	Active UST Facilities	SWRCB	03/07/2022	03/08/2022	06/02/2022
CA	UST CLOSURE	Proposed Closure of Underground Storage Tank (UST) Cases	State Water Resources Control Board	03/07/2022	03/08/2022	06/03/2022
CA	MILITARY UST SITES	Military UST Sites (GEOTRACKER)	State Water Resources Control Board	05/23/2022	05/23/2022	06/02/2022
CA	AST	Aboveground Petroleum Storage Tank Facilities	California Environmental Protection Agency	07/06/2016	07/12/2016	09/19/2016
US	INDIAN UST R8	Underground Storage Tanks on Indian Land	EPA Region 8	10/12/2021	11/15/2021	02/08/2022
US	INDIAN UST R7	Underground Storage Tanks on Indian Land	EPA Region 7	10/12/2021	11/15/2021	02/08/2022
US	INDIAN UST R4	Underground Storage Tanks on Indian Land	EPA Region 4	05/28/2021	06/22/2021	09/20/2021
US	INDIAN UST R9	Underground Storage Tanks on Indian Land	EPA Region 9	10/12/2021	11/15/2021	02/08/2022
US	INDIAN UST R10	Underground Storage Tanks on Indian Land	EPA Region 10	10/12/2021	11/15/2021	02/08/2022
US	INDIAN UST R6	Underground Storage Tanks on Indian Land	EPA Region 6	10/12/2021	11/15/2021	02/08/2022
US	INDIAN UST R5	Underground Storage Tanks on Indian Land	EPA Region 5	04/06/2021	06/11/2021	09/07/2021
US	INDIAN UST R1	Underground Storage Tanks on Indian Land	EPA, Region 1	10/14/2021	11/15/2021	02/08/2022
US	FEMA UST	Underground Storage Tank Listing	FEMA	10/14/2021	11/05/2021	02/01/2022
State and tribal voluntary cleanup sites						
US	INDIAN VCP R7	Voluntary Cleanup Priority Lisitng	EPA, Region 7	03/20/2008	04/22/2008	05/19/2008
US	INDIAN VCP R1	Voluntary Cleanup Priority Listing	EPA, Region 1	07/27/2015	09/29/2015	02/18/2016
CA	VCP	Voluntary Cleanup Program Properties	Department of Toxic Substances Control	01/24/2022	01/25/2022	04/13/2022

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
State and tribal Brownfields sites						
CA	BROWNFIELDS	Considered Brownfieds Sites Listing	State Water Resources Control Board	12/15/2021	12/16/2021	03/03/2022
Other Records						
US	CONSENT	Superfund (CERCLA) Consent Decrees	Department of Justice, Consent Decree Library	12/31/2021	01/14/2022	03/25/2022
US	ROD	Records Of Decision	EPA	04/27/2022	05/05/2022	05/31/2022
US	LIENS 2	CERCLA Lien Information	Environmental Protection Agency	04/27/2022	05/05/2022	05/31/2022
CA	HIST CAL-SITES	Calsites Database	Department of Toxic Substance Control	08/08/2005	08/03/2006	08/24/2006
US	DEBRIS REGION 9	Torres Martinez Reservation Illegal Dump Site Locations	EPA, Region 9	01/12/2009	05/07/2009	09/21/2009
CA	SWRCY	Recycler Database	Department of Conservation	03/07/2022	03/08/2022	06/02/2022
CA	CA FID UST	Facility Inventory Database	California Environmental Protection Agency	10/31/1994	09/05/1995	09/29/1995
CA	HIST UST	Hazardous Substance Storage Container Database	State Water Resources Control Board	10/15/1990	01/25/1991	02/12/1991
CA	SAN FRANCISCO AST	Aboveground Storage Tank Site Listing	San Francisco County Department of Public Hea	02/03/2022	02/04/2022	05/02/2022
CA	SWEEPS UST	SWEEPS UST Listing	State Water Resources Control Board	06/01/1994	07/07/2005	08/11/2005
US	US FIN ASSUR	Financial Assurance Information	Environmental Protection Agency	12/13/2021	12/17/2021	03/17/2022
US	COAL ASH DOE	Steam-Electric Plant Operation Data	Department of Energy	12/31/2020	11/30/2021	02/22/2022
US	2020 COR ACTION	2020 Corrective Action Program List	Environmental Protection Agency	09/30/2017	05/08/2018	07/20/2018
US	FUSRAP	Formerly Utilized Sites Remedial Action Program	Department of Energy	07/26/2021	07/27/2021	10/22/2021
US	LEAD SMELTER 1	Lead Smelter Sites	Environmental Protection Agency	04/27/2022	05/05/2022	05/31/2022
US	COAL ASH EPA	Coal Combustion Residues Surface Impoundments List	Environmental Protection Agency	01/12/2017	03/05/2019	11/11/2019
US	LEAD SMELTER 2	Lead Smelter Sites	American Journal of Public Health	04/05/2001	10/27/2010	12/02/2010
US	EPA WATCH LIST	EPA WATCH LIST	Environmental Protection Agency	08/30/2013	03/21/2014	06/17/2014
US	US AIRS (AFS)	Aerometric Information Retrieval System Facility Subsystem (	EPA	10/12/2016	10/26/2016	02/03/2017
US	US AIRS MINOR	Air Facility System Data	EPA	10/12/2016	10/26/2016	02/03/2017
US	PCB TRANSFORMER	PCB Transformer Registration Database	Environmental Protection Agency	09/13/2019	11/06/2019	02/10/2020
US	SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing	Environmental Protection Agency	01/01/2017	02/03/2017	04/07/2017
US	US HIST CDL	National Clandestine Laboratory Register	Drug Enforcement Administration	02/22/2022	02/23/2022	05/10/2022
US	Delisted NPL	National Priority List Deletions	EPA	04/27/2022	05/05/2022	05/31/2022
US	SEMS-ARCHIVE	Superfund Enterprise Management System Archive	EPA	04/27/2022	05/05/2022	05/31/2022
US	RCRA NonGen / NLR	RCRA - Non Generators / No Longer Regulated	Environmental Protection Agency	02/28/2022	03/02/2022	03/17/2022
US	HMIRS	Hazardous Materials Information Reporting System	U.S. Department of Transportation	12/15/2021	12/16/2021	03/10/2022
US	DOT OPS	Incident and Accident Data	Department of Transporation, Office of Pipeli	01/02/2020	01/28/2020	04/17/2020
US	US CDL	Clandestine Drug Labs	Drug Enforcement Administration	02/22/2022	02/23/2022	05/10/2022
US	US BROWNFIELDS	A Listing of Brownfields Sites	Environmental Protection Agency	02/23/2022	03/10/2022	03/10/2022
US	DOD	Department of Defense Sites	USGS	06/07/2021	07/13/2021	03/09/2022
US	FEDLAND	Federal and Indian Lands	U.S. Geological Survey	04/02/2018	04/11/2018	11/06/2019
US	FUDS	Formerly Used Defense Sites	U.S. Army Corps of Engineers	12/01/2021	02/15/2022	05/10/2022
US	UMTRA	Uranium Mill Tailings Sites	Department of Energy	08/30/2019	11/15/2019	01/28/2020
US	ODI	Open Dump Inventory	Environmental Protection Agency	06/30/1985	08/09/2004	09/17/2004
US	US MINES	Mines Master Index File	Department of Labor, Mine Safety and Health A	02/01/2022	02/23/2022	05/24/2022
US	MINES VIOLATIONS	MSHA Violation Assessment Data	DOL, Mine Safety & Health Admi	03/21/2022	03/22/2022	03/25/2022
US	US MINES 2	Ferrous and Nonferrous Metal Mines Database Listing	USGS	05/06/2020	05/27/2020	08/13/2020
US	US MINES 3	Active Mines & Mineral Plants Database Listing	USGS	04/14/2011	06/08/2011	09/13/2011
US	PRP	Potentially Responsible Parties	EPA	01/25/2022	02/03/2022	02/25/2022
US	TRIS	Toxic Chemical Release Inventory System	EPA	12/31/2018	08/14/2020	11/04/2020
US	TSCA	Toxic Substances Control Act	EPA	12/31/2016	06/17/2020	09/10/2020

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
US	FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fu	EPA/Office of Prevention, Pesticides and Toxi	04/09/2009	04/16/2009	05/11/2009
US	FTTS INSP	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fu	EPA	04/09/2009	04/16/2009	05/11/2009
US	HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing	Environmental Protection Agency	10/19/2006	03/01/2007	04/10/2007
US	HIST FTTS INSP	FIFRA/TSCA Tracking System Inspection & Enforcement Case Lis	Environmental Protection Agency	10/19/2006	03/01/2007	04/10/2007
US	SSTS	Section 7 Tracking Systems	EPA	01/19/2022	01/19/2022	04/11/2022
US	ICIS	Integrated Compliance Information System	Environmental Protection Agency	11/18/2016	11/23/2016	02/10/2017
US	PADS	PCB Activity Database System	EPA	01/20/2022	01/20/2022	03/25/2022
US	MLTS	Material Licensing Tracking System	Nuclear Regulatory Commission	07/29/2021	08/24/2021	11/19/2021
US	RADINFO	Radiation Information Database	Environmental Protection Agency	07/01/2019	07/01/2019	09/23/2019
US	FINDS	Facility Index System/Facility Registry System	EPA	05/13/2022	05/18/2022	05/31/2022
US	RAATS	RCRA Administrative Action Tracking System	EPA	04/17/1995	07/03/1995	08/07/1995
US	RMP	Risk Management Plans	Environmental Protection Agency	04/27/2022	05/04/2022	05/10/2022
US	BRS	Biennial Reporting System	EPA/NTIS	12/31/2019	03/02/2022	03/25/2022
US	PWS	Public Water System Data	EPA	12/17/2013	01/09/2014	10/15/2014
US	INDIAN RESERV	Indian Reservations	USGS	12/31/2014	07/14/2015	01/10/2017
US	INDIAN ODI	Report on the Status of Open Dumps on Indian Lands	Environmental Protection Agency	12/31/1998	12/03/2007	01/24/2008
US	IHS OPEN DUMPS	Open Dumps on Indian Land	Department of Health & Human Serivces, Indian	04/01/2014	08/06/2014	01/29/2015
US	ABANDONED MINES	Abandoned Mines	Department of Interior	12/14/2021	12/15/2021	03/10/2022
CA	CA BOND EXP. PLAN	Bond Expenditure Plan	Department of Health Services	01/01/1989	07/27/1994	08/02/1994
CA	CDL	Clandestine Drug Labs	Department of Toxic Substances Control	12/31/2019	01/20/2021	04/08/2021
CA	CHMIRS	California Hazardous Material Incident Report System	Office of Emergency Services	12/31/2021	01/19/2022	04/08/2022
CA	CORTESE	"Cortese" Hazardous Waste & Substances Sites List	CAL EPA/Office of Emergency Information	12/16/2021	12/16/2021	03/03/2022
CA	CUPA LIVERMORE-PLEASANTON	CUPA Facility Listing	Livermore-Pleasanton Fire Department	12/07/2021	05/09/2022	05/17/2022
CA	DEED	Deed Restriction Listing	DTSC and SWRCB	02/28/2022	02/28/2022	05/25/2022
CA	DRYCLEANERS	Cleaner Facilities	Department of Toxic Substance Control	08/27/2021	09/01/2021	11/19/2021
CA	DRYCLEAN AVAQMD	Antelope Valley Air Quality Management District Drycleaner L	Antelope Valley Air Quality Management Distri	02/24/2022	02/25/2022	05/18/2022
CA	DRYCLEAN SOUTH COAST	South Coast Air Quality Management District Drycleaner Listi	South Coast Air Quality Management District	02/17/2022	02/24/2022	05/18/2022
CA	EMI	Emissions Inventory Data	California Air Resources Board	12/31/2019	06/10/2021	08/27/2021
CA	ENF	Enforcement Action Listing	State Water Resoruces Control Board	04/12/2022	04/19/2022	05/31/2022
CA	Financial Assurance 1	Financial Assurance Information Listing	Department of Toxic Substances Control	01/13/2022	01/14/2022	04/08/2022
CA	Financial Assurance 2	Financial Assurance Information Listing	California Integrated Waste Management Board	02/23/2022	02/24/2022	05/18/2022
CA	HAULERS	Registered Waste Tire Haulers Listing	Integrated Waste Management Board	02/15/2022	02/24/2022	05/25/2022
CA	HAZNET	Facility and Manifest Data	California Environmental Protection Agency	12/31/2019	04/15/2020	07/02/2020
CA	HIST CORTESE	Hazardous Waste & Substance Site List	Department of Toxic Substances Control	04/01/2001	01/22/2009	04/08/2009
CA	HWP	EnviroStor Permitted Facilities Listing	Department of Toxic Substances Control	02/14/2022	02/15/2022	05/12/2022
CA	HWT	Registered Hazardous Waste Transporter Database	Department of Toxic Substances Control	01/03/2022	01/04/2022	03/18/2022
CA	ICE	ICE	Department of Toxic Subsances Control	02/14/2022	02/15/2022	05/12/2022
CA	LDS	Land Disposal Sites Listing (GEOTRACKER)	State Water Qualilty Control Board	05/23/2022	05/23/2022	05/24/2022
CA	LIENS	Environmental Liens Listing	Department of Toxic Substances Control	02/24/2022	02/25/2022	03/09/2022
CA	MCS	Military Cleanup Sites Listing (GEOTRACKER)	State Water Resources Control Board	05/23/2022	05/23/2022	05/24/2022
CA	MINES	Mines Site Location Listing	Department of Conservation	03/07/2022	03/08/2022	06/01/2022
CA	MWMP	Medical Waste Management Program Listing	Department of Public Health	02/17/2022	02/28/2022	05/25/2022
CA	NPDES	NPDES Permits Listing	State Water Resources Control Board	02/07/2022	02/08/2022	05/05/2022
CA	PEST LIC	Pesticide Regulation Licenses Listing	Department of Pesticide Regulation	02/28/2022	02/28/2022	05/25/2022
CA	PROC	Certified Processors Database	Department of Conservation	03/07/2022	03/08/2022	06/02/2022
CA	NOTIFY 65	Proposition 65 Records	State Water Resources Control Board	03/11/2022	03/15/2022	06/08/2022
CA	SCH	School Property Evaluation Program	Department of Toxic Substances Control	01/24/2022	01/25/2022	04/13/2022

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
CA	SPILLS 90	SPILLS90 data from FirstSearch	FirstSearch	06/06/2012	01/03/2013	02/22/2013
CA	TOXIC PITS	Toxic Pits Cleanup Act Sites	State Water Resources Control Board	07/01/1995	08/30/1995	09/26/1995
CA	UIC	UIC Listing	Deaprtment of Conservation	03/07/2022	03/08/2022	06/02/2022
CA	WASTEWATER PITS	Oil Wastewater Pits Listing	RWQCB, Central Valley Region	02/11/2021	07/01/2021	09/29/2021
CA	WDS	Waste Discharge System	State Water Resources Control Board	06/19/2007	06/20/2007	06/29/2007
CA	WIP	Well Investigation Program Case List	Los Angeles Water Quality Control Board	07/03/2009	07/21/2009	08/03/2009
CA	WMUDS/SWAT	Waste Management Unit Database	State Water Resources Control Board	04/01/2000	04/10/2000	05/10/2000
CA	HWTS	Hazardous Waste Tracking System	Department of Toxic Substances Control	04/05/2022	04/05/2022	04/26/2022
CA	WDR	Waste Discharge Requirements Listing	State Water Resources Control Board	03/07/2022	03/08/2022	06/03/2022
US	UXO	Unexploded Ordnance Sites	Department of Defense	12/31/2020	01/11/2022	02/14/2022
CA	CERS TANKS	California Environmental Reporting System (CERS) Tanks	California Environmental Protection Agency	01/18/2022	01/19/2022	04/11/2022
CA	CERS HAZ WASTE	CERS HAZ WASTE	CalEPA	01/18/2022	01/19/2022	04/11/2022
US	ECHO	Enforcement & Compliance History Information	Environmental Protection Agency	01/01/2022	01/04/2022	01/10/2022
CA	NON-CASE INFO	Non-Case Information Sites (GEOTRACKER)	State Water Resources Control Board	05/23/2022	05/23/2022	06/02/2022
US	MINES MRDS	Mineral Resources Data System	USGS	04/06/2018	10/21/2019	10/24/2019
CA	MILITARY PRIV SITES	Military Privatized Sites (GEOTRACKER)	State Water Resources Control Board	05/23/2022	05/23/2022	06/02/2022
CA	WELL STIM PROJ	Well Stimulation Project (GEOTRACKER)	State Water Resources Control Board	05/23/2022	05/23/2022	06/02/2022
CA	UIC GEO	Underground Injection Control Sites (GEOTRACKER)	State Water Resource Control Board	05/23/2022	05/23/2022	06/02/2022
CA	SAMPLING POINT	Sampling Point ? Public Sites (GEOTRACKER)	State Water Resources Control Board	05/23/2022	05/23/2022	06/02/2022
CA	PROJECT	Project Sites (GEOTRACKER)	State Water Resources Control Board	05/23/2022	05/23/2022	06/02/2022
CA	PROD WATER PONDS	Produced Water Ponds Sites (GEOTRACKER)	State Water Resources Control Board	05/23/2022	05/23/2022	06/02/2022
US	FEDERAL FACILITY	Federal Facility Site Information listing	Environmental Protection Agency	05/25/2021	06/24/2021	09/20/2021
CA	OTHER OIL GAS	Other Oil & Gas Projects Sites (GEOTRACKER)	State Water Resources Control Board	05/23/2022	05/23/2022	06/02/2022
CA	PFAS	PFAS Contamination Site Location Listing	State Water Resources Control Board	03/07/2022	03/08/2022	06/02/2022
US	FUELS PROGRAM	EPA Fuels Program Registered Listing	EPA	02/17/2022	02/17/2022	05/10/2022
CA	AQUEOUS FOAM	Former Fire Training Facility Assessments Listing	State Water Resources Control Board	02/20/2020	12/10/2021	02/25/2022
US	DOCKET HWC	Hazardous Waste Compliance Docket Listing	Environmental Protection Agency	05/06/2021	05/21/2021	08/11/2021
CA	CERS	CalEPA Regulated Site Portal Data	California Environmental Protection Agency	01/18/2022	01/19/2022	04/08/2022
CA	CIWQS	California Integrated Water Quality System	State Water Resources Control Board	02/28/2022	02/28/2022	05/25/2022

HISTORICAL USE RECORDS

US	EDR MGP	EDR Proprietary Manufactured Gas Plants	EDR, Inc.			
US	EDR Hist Auto	EDR Exclusive Historical Auto Stations	EDR, Inc.			
US	EDR Hist Cleaner	EDR Exclusive Historical Cleaners	EDR, Inc.			
CA	RGA LF	Recovered Government Archive Solid Waste Facilities List	Department of Resources Recycling and Recover		07/01/2013	01/13/2014
CA	RGA LUST	Recovered Government Archive Leaking Underground Storage Tan	State Water Resources Control Board		07/01/2013	12/30/2013

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
COUNTY RECORDS						
CA	CS ALAMEDA	Contaminated Sites	Alameda County Environmental Health Services	01/09/2019	01/11/2019	03/05/2019
CA	UST ALAMEDA	Underground Tanks	Alameda County Environmental Health Services	12/28/2021	12/28/2021	03/18/2022
CA	CUPA AMADOR	CUPA Facility List	Amador County Environmental Health	02/04/2022	02/04/2022	05/02/2022
CA	CUPA BUTTE	CUPA Facility Listing	Public Health Department	04/21/2017	04/25/2017	08/09/2017
CA	CUPA CALVERAS	CUPA Facility Listing	Calveras County Environmental Health	03/17/2022	03/18/2022	06/08/2022
CA	CUPA COLUSA	CUPA Facility List	Health & Human Services	04/06/2020	04/23/2020	07/10/2020
CA	SL CONTRA COSTA	Site List	Contra Costa Health Services Department	01/24/2022	01/25/2022	04/14/2022
CA	CUPA DEL NORTE	CUPA Facility List	Del Norte County Environmental Health Divisio	01/10/2022	01/26/2022	04/14/2022
CA	CUPA EL DORADO	CUPA Facility List	El Dorado County Environmental Management Dep	02/16/2022	02/17/2022	05/10/2022
CA	CUPA FRESNO	CUPA Resources List	Dept. of Community Health	06/28/2021	12/21/2021	03/03/2022
CA	CUPA GLENN	CUPA Facility List	Glenn County Air Pollution Control District	01/22/2018	01/24/2018	03/14/2018
CA	CUPA HUMBOLDT	CUPA Facility List	Humboldt County Environmental Health	08/12/2021	08/12/2021	11/08/2021
CA	CUPA IMPERIAL	CUPA Facility List	San Diego Border Field Office	01/13/2022	01/14/2022	04/06/2022
CA	CUPA INYO	CUPA Facility List	Inyo County Environmental Health Services	04/02/2018	04/03/2018	06/14/2018
CA	CUPA KERN	CUPA Facility List	Kern County Public Health	02/10/2022	02/11/2022	05/04/2022
CA	UST KERN	Underground Storage Tank Sites & Tank Listing	Kern County Environment Health Services Depar	02/10/2022	02/11/2022	05/04/2022
CA	CUPA KINGS	CUPA Facility List	Kings County Department of Public Health	12/03/2020	01/26/2021	04/14/2021
CA	CUPA LAKE	CUPA Facility List	Lake County Environmental Health	02/10/2022	02/11/2022	05/04/2022
CA	CUPA LASSEN	CUPA Facility List	Lassen County Environmental Health	07/31/2020	08/21/2020	11/09/2020
CA	AOCONCERN	Key Areas of Concerns in Los Angeles County		03/30/2009	03/31/2009	10/23/2009
CA	HMS LOS ANGELES	HMS: Street Number List	Department of Public Works	04/04/2022	04/05/2022	04/13/2022
CA	LF LOS ANGELES	List of Solid Waste Facilities	La County Department of Public Works	01/10/2022	01/11/2022	04/04/2022
CA	LF LOS ANGELES CITY	City of Los Angeles Landfills	Engineering & Construction Division	01/01/2022	01/21/2022	04/11/2022
CA	LOS ANGELES AST	Active & Inactive AST Inventory	Los Angeles Fire Department	06/01/2019	06/25/2019	08/22/2019
CA	LOS ANGELES CO LF METHANE	Methane Producing Landfills	Los Angeles County Department of Public Works	01/10/2022	01/12/2022	04/04/2022
CA	LOS ANGELES HM	Active & Inactive Hazardous Materials Inventory	Los Angeles Fire Department	04/19/2021	06/17/2021	06/28/2021
CA	LOS ANGELES UST	Active & Inactive UST Inventory	Los Angeles Fire Department	04/19/2021	06/17/2021	09/14/2021
CA	SITE MIT LOS ANGELES	Site Mitigation List	Community Health Services	05/26/2021	07/09/2021	09/29/2021
CA	UST EL SEGUNDO	City of El Segundo Underground Storage Tank	City of El Segundo Fire Department	01/21/2017	04/19/2017	05/10/2017
CA	UST LONG BEACH	City of Long Beach Underground Storage Tank	City of Long Beach Fire Department	04/22/2019	04/23/2019	06/27/2019
CA	UST TORRANCE	City of Torrance Underground Storage Tank	City of Torrance Fire Department	02/02/2021	04/28/2021	07/13/2021
CA	CUPA MADERA	CUPA Facility List	Madera County Environmental Health	08/10/2020	08/12/2020	10/23/2020
CA	UST MARIN	Underground Storage Tank Sites	Public Works Department Waste Management	09/26/2018	10/04/2018	11/02/2018
CA	UST MENDOCINO	Mendocino County UST Database	Department of Public Health	09/22/2021	11/18/2021	11/22/2021
CA	CUPA MERCED	CUPA Facility List	Merced County Environmental Health	02/15/2022	02/17/2022	05/11/2022
CA	CUPA MONO	CUPA Facility List	Mono County Health Department	02/22/2021	03/02/2021	05/19/2021
CA	CUPA MONTEREY	CUPA Facility Listing	Monterey County Health Department	10/04/2021	10/06/2021	12/29/2021
CA	LUST NAPA	Sites With Reported Contamination	Napa County Department of Environmental Manag	01/09/2017	01/11/2017	03/02/2017
CA	UST NAPA	Closed and Operating Underground Storage Tank Sites	Napa County Department of Environmental Manag	09/05/2019	09/09/2019	10/31/2019
CA	CUPA NEVADA	CUPA Facility List	Community Development Agency	01/25/2022	01/26/2022	04/14/2022
CA	IND_SITE ORANGE	List of Industrial Site Cleanups	Health Care Agency	01/14/2022	02/03/2022	04/14/2022
CA	LUST ORANGE	List of Underground Storage Tank Cleanups	Health Care Agency	01/14/2022	02/04/2022	05/02/2022
CA	UST ORANGE	List of Underground Storage Tank Facilities	Health Care Agency	01/14/2022	02/01/2022	04/18/2022
CA	MS PLACER	Master List of Facilities	Placer County Health and Human Services	05/25/2022	05/26/2022	06/01/2022
CA	CUPA PLUMAS	CUPA Facility List	Plumas County Environmental Health	03/31/2019	04/23/2019	06/26/2019

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
CA	LUST RIVERSIDE	Listing of Underground Tank Cleanup Sites	Department of Environmental Health	03/31/2022	03/31/2022	04/08/2022
CA	UST RIVERSIDE	Underground Storage Tank Tank List	Department of Environmental Health	03/31/2022	03/31/2022	04/08/2022
CA	CS SACRAMENTO	Toxic Site Clean-Up List	Sacramento County Environmental Management	06/18/2021	09/28/2021	12/14/2021
CA	ML SACRAMENTO	Master Hazardous Materials Facility List	Sacramento County Environmental Management	08/02/2021	08/04/2021	11/02/2021
CA	CUPA SAN BENITO	CUPA Facility List	San Benito County Environmental Health	04/29/2022	04/29/2022	05/05/2022
CA	PERMITS SAN BERNARDINO	Hazardous Material Permits	San Bernardino County Fire Department Hazardo	05/12/2022	05/12/2022	05/18/2022
CA	HMMD SAN DIEGO	Hazardous Materials Management Division Database	Hazardous Materials Management Division	02/28/2022	02/28/2022	05/25/2022
CA	LF SAN DIEGO	Solid Waste Facilities	Department of Health Services	10/27/2021	03/04/2022	05/31/2022
CA	SAN DIEGO CO LOP	Local Oversight Program Listing	Department of Environmental Health	07/22/2021	10/19/2021	01/13/2022
CA	SAN DIEGO CO SAM	Environmental Case Listing	San Diego County Department of Environmental	03/23/2010	06/15/2010	07/09/2010
CA	CUPA SAN FRANCISCO CO	CUPA Facility Listing	San Francisco County Department of Environmen	02/03/2022	02/04/2022	02/11/2022
CA	LUST SAN FRANCISCO	Local Oversite Facilities	Department Of Public Health San Francisco Cou	09/19/2008	09/19/2008	09/29/2008
CA	UST SAN FRANCISCO	Underground Storage Tank Information	Department of Public Health	02/03/2022	02/04/2022	05/02/2022
CA	SAN FRANCISCO MAHER	Maher Ordinance Property Listing	San Francisco Planning	01/18/2022	01/20/2022	04/27/2022
CA	UST SAN JOAQUIN	San Joaquin Co. UST	Environmental Health Department	06/22/2018	06/26/2018	07/11/2018
CA	CUPA SAN LUIS OBISPO	CUPA Facility List	San Luis Obispo County Public Health Departme	02/15/2022	02/16/2022	05/13/2022
CA	BI SAN MATEO	Business Inventory	San Mateo County Environmental Health Service	02/20/2020	02/20/2020	04/24/2020
CA	LUST SAN MATEO	Fuel Leak List	San Mateo County Environmental Health Service	03/29/2019	03/29/2019	05/29/2019
CA	CUPA SANTA BARBARA	CUPA Facility Listing	Santa Barbara County Public Health Department	09/08/2011	09/09/2011	10/07/2011
CA	CUPA SANTA CLARA	Cupa Facility List	Department of Environmental Health	02/14/2022	02/16/2022	05/12/2022
CA	HIST LUST SANTA CLARA	HIST LUST - Fuel Leak Site Activity Report	Santa Clara Valley Water District	03/29/2005	03/30/2005	04/21/2005
CA	LUST SANTA CLARA	LOP Listing	Department of Environmental Health	03/03/2014	03/05/2014	03/18/2014
CA	SAN JOSE HAZMAT	Hazardous Material Facilities	City of San Jose Fire Department	11/03/2020	11/05/2020	01/26/2021
CA	CUPA SANTA CRUZ	CUPA Facility List	Santa Cruz County Environmental Health	01/21/2017	02/22/2017	05/23/2017
CA	CUPA SHASTA	CUPA Facility List	Shasta County Department of Resource Manageme	06/15/2017	06/19/2017	08/09/2017
CA	LUST SOLANO	Leaking Underground Storage Tanks	Solano County Department of Environmental Man	06/04/2019	06/06/2019	08/13/2019
CA	UST SOLANO	Underground Storage Tanks	Solano County Department of Environmental Man	09/15/2021	09/16/2021	12/09/2021
CA	CUPA SONOMA	Cupa Facility List	County of Sonoma Fire & Emergency Services De	07/02/2021	07/06/2021	07/14/2021
CA	LUST SONOMA	Leaking Underground Storage Tank Sites	Department of Health Services	06/30/2021	06/30/2021	09/24/2021
CA	CUPA STANISLAUS	CUPA Facility List	Stanislaus County Department of Ennvironmenta	02/08/2022	02/10/2022	05/04/2022
CA	UST SUTTER	Underground Storage Tanks	Sutter County Environmental Health Services	11/23/2021	11/29/2021	02/11/2022
CA	CUPA TEHAMA	CUPA Facility List	Tehama County Department of Environmental Hea	01/13/2021	01/14/2021	04/06/2021
CA	CUPA TRINITY	CUPA Facility List	Department of Toxic Substances Control	01/13/2022	01/14/2022	04/06/2022
CA	CUPA TULARE	CUPA Facility List	Tulare County Environmental Health Services D	04/26/2021	04/28/2021	07/13/2021
CA	CUPA TUOLUMNE	CUPA Facility List	Divison of Environmental Health	04/23/2018	04/25/2018	06/25/2018
CA	BWT VENTURA	Business Plan, Hazardous Waste Producers, and Operating Unde	Ventura County Environmental Health Division	12/27/2021	01/20/2022	04/08/2022
CA	LF VENTURA	Inventory of Illegal Abandoned and Inactive Sites	Environmental Health Division	12/01/2011	12/01/2011	01/19/2012
CA	LUST VENTURA	Listing of Underground Tank Cleanup Sites	Environmental Health Division	05/29/2008	06/24/2008	07/31/2008
CA	MED WASTE VENTURA	Medical Waste Program List	Ventura County Resource Management Agency	12/27/2021	01/20/2022	04/11/2022
CA	UST VENTURA	Underground Tank Closed Sites List	Environmental Health Division	02/28/2022	03/08/2022	06/02/2022
CA	UST YOLO	Underground Storage Tank Comprehensive Facility Report	Yolo County Department of Health	12/27/2021	01/04/2022	03/18/2022
CA	CUPA YUBA	CUPA Facility List	Yuba County Environmental Health Department	01/26/2022	01/27/2022	04/14/2022

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date

STREET AND ADDRESS INFORMATION

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APPENDIX F
RESUME OF ESA REPORT PREPARER

EDUCATION

- M.B.A., Business, California Baptist University, Riverside, 2007
- B.S. Health Science; Environmental Health Concentration, California State University, San Bernardino, 2002

EXPERIENCE SUMMARY

Mr. Amendola has experience in land use planning, CEQA compliance, surface mine planning and permitting, and regulatory compliance since 2002. He has managed the environmental compliance documentation for both public and private development projects throughout southern California. Mr. Amendola has completed Phase I Environmental Site Assessments in compliance with ASTM and Federal Standards since 2002. In addition to completing ESAs for local municipalities throughout the Inland Empire, he is also experienced in the preparation of documents in compliance with the Certified Unified Program Agency (CUPA), Business Emergency/Contingency Plan, California Environmental Quality Act (CEQA), National Environmental Policy Act (NEPA), Surface Mining and Reclamation Act (SMRA), and California Clean Air Act.

SELECTED PHASE I ESA PROJECT EXPERIENCE

- Phase I ESA for Apple Valley Ranchos Water Company Well Site, Town of Apple Valley
- Phase I ESA San Bernardino County Public Works on a 0.9-acre vacant parcel within City of Victorville.
- Phase I ESA San Bernardino County Flood Control District on 1.48 acres located west of Hesperia Road and north of Seneca Road in the City of Victorville,
- Phase I ESA for Northern Portion of a 3.5-acre property at 5156 Route 66, City of Needles
- Phase I ESA for Southern Portion of a 3.5-acre property at 5156 Route 66, City of Needles
- Phase I ESA for Property West of Graham Street Between West Merz Road and Weston Road, City of Perris
- Phase I ESA for County of Riverside Future Animal Shelter on Six Parcels Totaling 20.5 acres, City of San Jacinto
- Phase I ESA for 10.5-acre Property South of Congress Street and North of Santa Ana River, City of Colton
- Phase I ESA for 0.5-acre Property at 1595 W. Valley Boulevard, City of Colton
- Phase I ESA Future San Bernardino County Fire Station on 2.91-acre Site near San Bernardino Avenue and Commerce Drive, City of San Bernardino

- Phase I ESA for 2.8-acre Property at 14205 Valley Boulevard, City of Fontana
- Phase I ESA for Nine Parcels Totaling Approximately 20 Acres south of San Bernardino Avenue in Vicinity of North Woodpine and North Indigo Avenues, City of Colton
- Phase I ESA for Five Parcels Totaling Approximately 4.2 Acres At Southwest Corner of Foothill Boulevard and Almeria Avenue, Unincorporated Area of Fontana
- Phase I ESA for 0.6-acre Property near Arrow Boulevard and Whittram Avenue, Fontana
- Phase I ESA for 9.74-acre Property Near Terminus of Love Lane, Unincorporated Area of Corona

PROFESSIONAL AFFILIATIONS & CERTIFICATIONS

Certificate of Completion, 2019, SMARA Inspection
Workshop Association of Environmental Professionals (AEP),
member

CITY OF MENIFEE

MEMORANDUM

PUBLIC WORKS / ENGINEERING DEPARTMENT

DATE: **January 18, 2023**

TO: **Russell Brown, AICP, Senior Planner**

FROM: **Chet Robinson, PE, GE, Senior Engineer**

CC: **Steve Strapac, PE, PLS, Principal Engineer**

SUBJECT: **RPT22-023 – Phase I ESA Report Review Comments, PC2**
Villages at Junipero

The comments noted herein are for review of the following:

- Phase I and Limited Phase II Environmental Site Assessment on Three Parcels Located at E. Heritage Lake Drive and Menifee Road, prepared by Lilburn Corporation, dated August 2022.

Our review was provided of the Phase I Environmental Site Assessment for the Villages at Junipero for conformance with the minimum criteria outlined in ASTM International E1527, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.

The submitted report adequately addresses our review comments and is recommended for entitlement approval. Any questions can be directed to Chet Robinson at (951) 723-3879, or by email at crobinson@cityofmenifee.us

January 11, 2023
Project Number: 01217205.00

Mr. Chet Robinson, PE, GE
City of Menifee
29714 Haun Road
Menifee, California 92586

Subject: **Third Party Report - Review of Phase II and II Environmental Site Assessment (Review)**
RPT22-023

Site: **Villages at Junipero**
Vacant Parcels Southeast of the Intersection of Junipero Road and E. Heritage Lake Drive, Menifee, California 92585

Dear Mr. Robinson:

Pursuant to your request and authorization, SCS Engineers (SCS) has reviewed[1] two City of Menifee (Client)-provided documents in connection with the above-referenced Site. SCS performed the Review to assess whether the Phase I ESA report and underlying work are generally consistent with the ASTM Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process E 1527-13 (Standard) and our experience, and to assess whether the completed soil sampling and analysis procedures are generally consistent with our experience and applicable regulatory guidance. The work described in this Review was performed by SCS in general accordance with the City of Menifee Professional Services Agreement, FY2022/2023 On-Call Engineering Services (Contract) between SCS and the Client, which is valid from July 1, 2022 through June 30, 2023.

Should you have any questions regarding this Review, please do not hesitate to call the undersigned at (858) 583-7749.

Sincerely,

Luke Montague, MESM, PG 8071
Vice President
SCS ENGINEERS

1 This Review was general in nature and not intended to address a detailed assessment of consistency with applicable regulatory standards.

1. BACKGROUND

Based on the Client's request and authorization, SCS has completed a Review of the following Client-provided reports:

- *Phase I and Limited Phase II Environmental Site Assessment On Three Parcels Located at E. Heritage Lake Drive and Menifee Road, Menifee CA (Parcel Nos. 333-070-018, 019, and 053),* prepared by Lilburn Corporation (Lilburn) for 29th Street Development and dated August 2022 (Phase I/II ESA)

- *Limited Site Investigation, Menifee Development, Northeast Intersection of Junipero Road and McCall Boulevard, Menifee, Riverside County, California,* prepared by Terracon and dated July 18, 2022 (Phase II ESA)

The above-referenced Phase I/II ESA report prepared by Lilburn appends and incorporates the results of the Phase II ESA report prepared by Terracon. The Phase I/II ESA report indicates that the site is comprised of three parcels of land comprising approximately 17.67 acres, is identified with Assessor's Parcel Number 333-070-018, -019, and -053, with no reported addresses available and located at the southwest corner of the intersection of East Heritage Lake Drive and Menifee Road in Menifee, California (Site). The Site is currently reported to store construction equipment such as portable construction offices, numerous shipping containers, as well as stockpiles of various materials including fine grained soil and gravel. No buildings or building remnants were reported to be present, and no evidence of underground storage tanks, stained soils, electrical transformers, or seepage pits were reported to be present.

Historically, Lilburn reported the Site was used for agricultural purposes from approximately 1938 to 1997, was reported to be vacant property that appeared to be disked in 1997, and was reported to be fallow in 2012 and 2016.

The Phase II ESA report that is summarized in the Phase I/II ESA report was conducted to assess for organochlorine pesticides and arsenic residues in shallow soil, in connection with the former agricultural land use of the Site. Terracon reported that soil analysis for organochlorine pesticides and arsenic were below the specified laboratory reporting limits and applicable screening limits. Overall, Terracon indicated that "Based on the findings of the LSI, no additional investigation appears warranted at this time." The means and methods and further details of the Phase II ESA are further discussed in the "Phase II ESA Report Review" section below.

Overall, Lilburn concluded that "Based on the field reconnaissance of the site a Phase I and limited Phase II site assessment is sufficient to evaluate the property in question and additional site investigations are not recommended."

REVIEW OF BIOSOLIDS/SLUDGE MAPS

In order to assess whether the Site is recorded as a biosolids/sludge application property, SCS reviewed the map titled "Permitted Biosolids/Sludge Application Map," prepared by the City of Menifee and un-dated. Based upon a review of the map, the Site is not shown as an area where Composite Fields were present.

2. PHASE I ENVIRONMENTAL SITE ASSESSMENT REVIEW

2.1 PHASE I ESA REQUIREMENTS

The following table summarizes various requirements of the Standard and if they were addressed as part of the above-referenced Phase I ESA. Please note that the table below does not include all requirements of the Standard.

Requirement	Addressed
User Requirements	
Review of title and judicial records for environmental liens or activity use limitations	No*
Specialized knowledge or experience of the user	No*
Purchase price compared to property value	No*
Commonly known or reasonably ascertainable information	No*
Obvious indications that point to the presence of contamination	No*
Site Reconnaissance	
Site building description	Yes
Site grounds description	Yes
Hazardous materials and petroleum product use and storage (type, quantity, storage conditions)	Yes
Hazardous waste generation (type, quantity, storage conditions)	Yes
Indications of releases	Yes
PCB-containing equipment	Yes
Fuel source for heating and cooling	Yes
Electricity and natural gas supplier	Yes
Potable water supplier	Yes
Sewer conveyance	Yes
Records Review	
Building department/ City clerk records review	Yes
Department of environmental health or other Standard Environmental Record Sources	Yes
Other additional records sources requests	Yes
Interviews	
Interviews with current owner	No*
Interview with current occupant	No*
Interview with previous owners	No*
Interview with previous occupants	No*
Physical Setting	
Topographic map review	Yes
Geology	Yes
Depth and flow direction of groundwater	Yes
Off-Site Source Survey	
Regulatory database review	Yes
Discussion and conclusions for facilities identified on the regulatory database	Yes
Regulatory file review for off-Site sources	Yes
Historical Site and Site Vicinity Land Use Review	
Aerial photograph review	Yes
Sanborn fire insurance map review	Yes
City directory review	No*
Historical resources reviewed back to when the Site was undeveloped or to 1940	Yes
Discussion of gaps of unconfirmed historical Site land use	Yes
Discussion of historical Site and Site vicinity land use	Yes
Data Gaps	
Discussion of Data Gaps	No*

Requirement	Addressed
Conclusions and Recommendations	
Conclusion consistent with Standard	Yes
Environmental professional signature	Yes
Report	
Within shelf-life	Yes
Reliance provided to The City of Menifee	No*

Notes:
* See Additional Discussion section below

2.2 PHASE I ESA REPORT ADDITIONAL DISCUSSION

SCS identified the following items in the Phase I ESA that are interpreted to either be either inconsistent with the Standard or our experience, or to warrant further discussion.

User Requirements

According to the Standard, completion of the User Questionnaire by the User (i.e., 29th Street Development) is optional to assist the User and the environmental professional in gathering information that may be material to identifying recognized environmental conditions. The User Questionnaire consists of questions regarding the following items that are to be completed by the User in order to qualify for one of the Landowner Liability Protections offered by the Small Business Liability Relief and Brownfields Revitalization Act of 2001:

- Environmental cleanup liens filed or recorded against the Site
- Activity and land use limitations that are in place on the Site or that have been filed or recorded in a registry
- Specialized knowledge or experience of the person seeking to qualify for CERCLA liability protections
- Relationship of the purchase price to the fair market value of the property as if it were not contaminated
- Commonly known or reasonably ascertainable information about the property
- The degree of obviousness of the presence of contamination at the property, and the ability to detect the contamination by appropriate investigation.

Considering that the Standard indicates that the User Questionnaire is optional, and considering that Lilburn appeared to address several of the above User Requirements using other relevant information sources such as through the various environmental databases that were searched in the EDR report and through requesting owner interviews, the lack of a completed User Questionnaire is not considered a significant data gap, and is not considered by SCS to be a potential recognized environmental condition.

Interviews

The above-referenced Standard requires that interviews be conducted with present and past owners and occupants of the Site. Although current Site owner representative was attempted to be interviewed as a part of the Phase I ESA, and there have reportedly not been tenants currently or historically at the Site, it does not appear that former Site owners were attempted to be interviewed as part of the Phase I ESA report.

Since there appear to be no current or historic tenants at the Site, tenant interviews are not possible. SCS considers the lack of interviews with current and former owners to be a data gap; however, SCS does not consider the lack of interviews with current and former owners to represent a significant data gap, considering that the Site has been vacant land with agricultural land uses, and based on the availability of other relevant information.

Historical Records Search – City Directories

No historical city directories were reported to have been requested for review for the Site or adjoining properties in the Phase I/II ESA report. Per the above-referenced Standard, city directories or local street directories are a standard historical record source that "shall be checked when, in the judgment of the environmental professional, such additional records (1) are reasonably ascertainable, (2) are sufficiently useful, accurate, and complete in light of the objective of the records review (see 8.1.1), and (3) are generally obtained, pursuant to local good commercial and customary practice, in initial environmental site assessments in the type of commercial real estate transaction involved." Although city directory records do not appear to have been requested for the Site or adjoining properties, the Site was not reported by Lilburn to have an address associated with the Site parcels, and was reported to have currently and historically been vacant and undeveloped land. Since Lilburn did review other various standard historical record sources, considering the presence of residential, school, and vacant land at the adjacent properties, and based on the availability of other relevant information, SCS does not consider the lack of a city directory records request to be a significant data gap. Therefore, the lack of a request for city directory records is not considered by SCS to represent a recognized environmental condition.

Discussion of Data Gaps

A data gap section or discussion about possible data gaps was not provided in the Phase I/II ESA report. The above-referenced Standard requires that "The report shall identify and comment on significant data gaps that affect the ability of the EP [environmental professional] to identify recognized environmental conditions and identify the sources of information that were consulted to address the data gaps."

SCS considers the lack of identification of data gaps in the Phase I/II ESA report to be a data gap. However, SCS does not consider the lack of identification of data gaps to represent a significant data gap, considering that the Site is currently and has historically been vacant land used for agricultural purposes, and based on the availability of other relevant information.

Reliance

The Phase I ESA report was prepared for 29th Street Development, the User of the Phase I ESA. No reliance of the Phase I/II ESA was provided to the City of Menifee.

SCS recommends that if the City of Menifee acts in a capacity as a relying party for the Site (i.e., as a lender extending credit to be secured by the Site, any purchaser, transferee or assignee, of a mortgage loan [or any portion thereof]), that the City of Menifee consider requesting a reliance letter from Lilburn as a relying party for the Phase I/II ESA for the Site.

3. PHASE II ESA REPORT REVIEW

The Phase II ESA report prepared by Terracon that is appended to the Phase I/II ESA report included the advancement of 18 shallow soil borings using a hand held auger, with samples collected from each boring location at a depth of approximately 0.5 feet below grade. Prior to sampling and in between samples, the auger was decontaminated in a detergent solution and two potable water rinses to ensure that cross-contamination of samples did not occur. The samples were transferred to laboratory supplied containers, which were sealed, labeled, and preserved in an iced cooler. The soil samples were transported under Chain-of-Custody protocol to Sun Star Laboratories in Lake Star, California for analysis.

The discrete samples were then composited by the laboratory at a 3:1 ratio, for a total of six analytical samples. The six samples were analyzed by the laboratory for organochlorine pesticides (OCPs) and arsenic by EPA Method 6010B. The laboratory reports and associated chain-of-custody forms were provided in the Appendix of the Phase II ESA. A map illustrating the soil sample locations was provided in the Phase II ESA.

Note that based on SCS' review of the historical aerial photographs included in the Phase I/II ESA, the former agricultural land use at the Site is interpreted to have been for dry farming purposes, and per the *Interim Guidance for Sampling Agricultural Properties (Third Revision)* prepared by the Department of Toxic Substances Control (DTSC) and dated August 7, 2008 (DTSC Guidance), land used for dry-land farming does not need further investigation for pesticides or metals such as arsenic. Additionally, as discussed in the "Review of Biosolids/Sludge Maps" section above, based on a review of the map titled "Permitted Biosolids/Sludge Application Map," prepared by the City of Menifee and un-dated, the Site is not shown as an area where Composite Fields were present. The Phase I/II ESA also did not appear to indicate that biosolids were applied to the Site historically. Therefore, the soil sampling for OCPs and arsenic does not appear to have been required in SCS' opinion based on current regulatory guidance and the available map reviewed. However; shallow sampling for OCPs is considered to be a suitable method to further verify whether OCPs and arsenic may be present in shallow soil to assess for pesticides residues in soil.

The six soil samples were reported by the laboratory to be non-detect for organochlorine pesticides and arsenic above laboratory reporting limits. Terracon concluded that the "Concentrations of detected analytes were below the applicable residential and commercial screening levels." Terracon recommended that "Based on the findings of the LSI, no additional investigation appears warranted at this time." The report was signed by a Registered Professional Geologist in the State of California.

The following table summarizes various portions of the Phase II ESA, as well as SCS' assessment with each of the portions of the work completed. SCS' assessment of the Phase II ESA is based on our experience and professional opinion, and on the use and practice of current industry standards known to SCS. Please note that the table below may not include all local, State, and Federal requirements.

Category	Satisfactory
Regulatory Standard Followed	
Generally follows the DTSC Guidance regarding sampling depth and laboratory analyses but not sample frequency. However, sampling for arsenic and OCPs are not required for former dry land agricultural land use per the DTSC Guidance	Not applicable
Sampling Methodology	
Shallow soil samples collected with a hand held auger and transferred to laboratory provided containers	Yes
Sampling equipment decontaminated between sample locations	Yes
Samples shipped in a chilled container under chain-of-custody	Yes
Laboratory Analysis	
Analysis of samples by State-certified laboratory	Yes
OCPs – EPA Method 8081A	Yes
Arsenic – EPA Method 6010B	Yes
Findings	
Summary of laboratory results	Yes
Comparison of laboratory results to applicable regulatory standard(s)	Yes
Conclusions and Recommendations	
Statement of whether objective(s) were achieved	Yes
Recommendations of further assessment or remedial measures, if needed	Yes
Report	
Sample Location Map	Yes
Copy of laboratory analytical report	Yes
Report signed by a properly licensed individual	Yes

4. RECOMMENDATIONS

Based on a review of the Phase I/II ESA and Phase II ESA reports, SCS recommends that the City of Menifee approve the Phase I/II ESA and Phase II ESA reports.

The below additional recommendation is provided at the discretion of the City of Menifee:

- SCS recommends that if the City of Menifee acts in a capacity as a relying party for the Site (i.e., as a lender extending credit to be secured by the Site, any purchaser, transferee or assignee, of a mortgage loan [or any portion thereof]), that the City of Menifee consider requesting a reliance letter from Lilburn as a relying party for the Phase I/II ESA report for the Site.

PHASE I AND LIMITED PHASE II ENVIRONMENTAL SITE ASSESSMENT ON THREE PARCELS LOCATED AT E. HERITAGE LAKE DRIVE AND MENIFEE ROAD, MENIFEE, CA

(Parcel Nos. 333-070-018, 019, and 053)

Prepared For:

Zach Shulruff
VP of Investments
29th Street Development

Prepared By:

Lilburn Corporation
1905 Business Center Drive
San Bernardino, California 92408
(909) 890-1818

August 2022

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1.0 INTRODUCTION

This Phase I and Limited Phase II Environmental Site Assessment (ESA) is prepared for the review of three parcels (APN Nos. 333-070-018, 019, and 053) consisting of approximately 17.67 acres, located at East Heritage Lake Drive and Menifee Road in the City of Menifee, California. The ESA examines the existing environmental conditions upon, and in the vicinity of the subject site, and identifies any historical or current land use that may pose a Recognized Environmental Condition (REC)[1] affecting the use or continued use of the subject property. Refer to Figures 1 and 2 for a Regional Location Map and Vicinity Map/Aerial Photograph of the subject property.

The purpose of this Limited Phase I/II ESA is to assess historical uses that may have affected the subject site specifically relating to the presence or likely presence of a REC such as hazardous materials or petroleum products. This report includes any observed potential impacts to the site that may have altered the site's ecology, environment, or functional use. Visual observations and inquiry into public records are documented; no documents related to the placement of water pipelines, gas mains or other infrastructure were reviewed. This Limited Phase I/II ESA includes limited soil testing for the presence of pesticides and biosolids at the request of the client. No other testing of soil, air, water or any other matter was conducted as part of this Phase I ESA.

American Society for Testing and Materials (ASTM) Guidelines*:* This environmental assessment follows the guidelines established by the ASTM Standard Practice Manual for the *Phase I Environmental Site Assessment* process, *ASTM Designation E 1527-05*.

The objective of this ESA is to evaluate the subject site for current and historical sources of environmental concerns, evidence of hazardous substance disposal or releases from or onto the subject site, evidence of environmental threats from adjacent properties, and whether further environmental testing of the site is warranted. This report meets *ASTM Standards for ESA's*. To meet these objectives, Lilburn Corporation performed the following tasks:

- Reviewed available environmental reports.
- Reviewed historic land use records and files.
- Reviewed pertinent regulatory agency documents.
- Reviewed available current and historical aerial photographs of the site and adjacent properties.
- Performed a reconnaissance of adjacent and immediately surrounding properties.
- Performed an on-site reconnaissance of the property and collected limited soil samples.
- Obtained laboratory analysis of soil samples.
- Prepared this report.

Results of this Environmental Site Assessment for the site located in the City of Menifee, County of Riverside, California are presented in the following Sections 2.0 – 7.0.

[1] American Society for Testing and Materials defines a Recognized Environmental Condition as "the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws.



0 0.8
Mile

Source: Lilburn Corp., August, 2022.

LILBURN CORPORATION

REGIONAL VICINITY

Menifee Phase I/II

City of Menifee, California

FIGURE 1



0 300

Feet

Source: Lilburn Corp., August, 2022.

LILBURN CORPORATION

PROJECT LOCATION

Menifee Phase I/II

City of Menifee, California

FIGURE 2

2.0 SITE LOCATION

The subject site herein referred to as “site, subject site” or "property" is being evaluated at the request of 29th Street Capital. The property consists of three parcels totaling approximately 17.67 acres, located at the southwest corner of E. Heritage Lake Drive and Menifee Road in the City of Menifee, California. In 2014, a report was completed for the subject property and entitled *Phase I and Limited Phase II Environmental Site Assessment on Three Parcels Located Northeast of the Intersection of Junipero Road and McCall Boulevard, Menifee, CA.* That report concluded that based on the field reconnaissance of the site, a Phase I and limited Phase II site assessment was sufficient to evaluate the property in question and additional site investigations were not recommended. This 2022 report has been prepared to evaluate existing and historic site conditions.

The geographical location of the site is as follows:

COORDINATES

Latitude (North):	33.7240790 - 33° 43’ 26.68’’
Longitude (West):	117.1562410 - 117° 9’ 22.46’’
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	485524.7
UTM Y (Meters):	3731380.5
Elevation:	Approximately 1461 ft. above sea level
Assessor’s Parcel Numbers:	0333-070-018, 019, and 053

The subject site boundaries are within the U.S. Geological Survey (USGS) Topographic Map: Romoland 7.5-minute series, Section 23, T5S, R3W, San Bernardino Base and Meridian.

2.1 DESCRIPTION OF SURROUNDING AREA

The property is predominately surrounded by development. Land uses include Menifee Road, Junipero Road, E. Heritage Lake Drive, residential, institutional (elementary school), and vacant properties. East Heritage Lake Drive and single-family residential uses are located to the north, Menifee Road and single-family residential uses are on the east, Junipero Road and Boulder Ridge Elementary School are to the west, and the property to the south is currently being developed (end use could not be determined). The subject site contains no buildings or structures, but appears to be an active construction office for the development of the property to the south.

2.2 REVIEW OF HISTORIC PHOTOGRAPHS

Various governmental agencies including the USGS and local flood control agencies have systematically photographed land uses since the early 1920s. These historical photographs are utilized to assist in identifying historical uses of the subject and adjacent properties. Aerial photographs available that show the subject site and surrounding land uses were analyzed for the following years and corresponding scales:

1938: 1"=500'	*1953: 1"=500'*	*1967: 1"=500'*	*1978: 1"=500'*
1985: 1"=500'	*1997: 1"=500'*	*2006: 1"=500'*	*2012: 1"=500'*
2016: 1"=500'			

Appendix A contains the aerial photographs analyzed. The subject site was marked on each photograph to show an approximate location. The following is a summary of the photograph observations of land uses on-site and in the vicinity for the corresponding years when the photographs were taken.

- The 1938 aerial photograph shows the subject site being located in an undeveloped area with agricultural uses on and surrounding the subject property. A single-family structure and trees/landscaping is evident approximately ¼-mile north of the subject site.

- The 1953 aerial photograph shows that the subject property and surrounding area continues to be used for agriculture. Structures are evident approximately ¼-mile south of the subject site. There appears to be little development that has occurred within the immediate area of the site when compared to the 1938 aerial photograph.

- The 1967 aerial photograph shows a new east-west roadway located approximately ¼-mile south of the subject property (today known as McCall Boulevard), with additional structures appearing south of the new roadway. There is no discernable change to the subject site in the 1967 aerial photograph when compared to the 1953 aerial photograph. Property surrounding the subject site and the subject site itself remain vacant.

- The 1978 aerial photograph shows additional development occurring ¼- to ½-mile south of the subject property. No other significant changes from the 1967 aerial photograph are evident. Menifee Road appears to have been developed. No structures are located on the subject site or on the immediate surrounding properties.

- The 1985 aerial photograph shows little change from the 1978 aerial photograph. The subject property and surrounding area continue to be used for agriculture.

- The 1997 aerial photograph shows little change from the 1985 aerial photograph with some development occurring approximately ½-mile north of the subject property. The subject property and surrounding area continue to be used for agriculture.

- The 2006 aerial photograph shows construction occurring on the property directly to the west of the subject site (Boulder Ridge Middle School). Property directly south of the westernmost parcels appears to be being utilized as a stockpile for the middle school construction material/equipment. Property located east of the subject property across Menifee Road appears to have been graded, and single-family homes appear to have been developed approximately ¼-mile southeast of the subject site. The subject site appears to be unchanged from the 1997 aerial and remains vacant with only routing disking.

- The 2012 aerial photograph shows completion of a single-family home development to the east of the subject site. No other significant changes from the 2006 aerial photograph are evident. The subject site appears to be fallow.

- The 2016 aerial photograph shows no significant changes from the 2012 aerial photograph. The subject site appears unchanged.

None of the historical aerial photographs reviewed show any development on the subject property or development of railroad tracks or bridges on or adjacent to the subject property that would create a REC.

2.3 HISTORIC UNITED STATES GEOLOGICAL SURVEY (USGS) MAPS

Available historic and current USGS maps that include the subject site and surrounding area were reviewed for the following years:

1901: Elsinore Quadrangle; 30 Minute Series
1947: Murrieta Quadrangle; 15 Minute Series
1953: Romoland Quadrangle; 7.5 Minute Series
1973: Romoland Quadrangle 7.5 Minute Series
1979: Romoland Quadrangle; 7.5 Minute Series
2015: Romoland Quadrangle; 7.5 Minute Series
2018: Romoland Quadrangle; 7.5 Minute Series

The USGS has produced several national series of topographic maps which vary in scale and extent in the area going back to the early 1900's. The largest (both in terms of scale and quantity) and best-known topographic series is the 7.5-minute, 1:24,000 scale, and quadrangle. Each of these maps covers an area bounded by two lines of latitude and two lines of longitude spaced 7.5 minutes apart. These maps are utilized to assist in identifying historical uses of the subject and adjacent properties and identify power lines and other physical infrastructure that could affect the subject property or the surrounding area. Appendix B contains the topographic maps reviewed, and the approximate location of the subject site is identified on each map. The subject site is currently located on the Romoland USGS Quadrangle. A summary of the review of the maps are discussed herein.

- The 1901 Elsinore Quadrangle USGS map of the area show no specific streets or development in the immediate vicinity of the subject property however the map scale lacks detail relating to structures on or in the vicinity of the site. The map shows a rail line located approximately ½-mile north of the subject property.
- The 1947 USGS map of the area shows development of a street (Menifee Road) adjacent to the easternmost parcel of the subject property. No structures or development is evident within the immediate area of the project site.
- The 1953 USGS map of the area shows no structures or development within the immediate area of the project site.
- The 1973 USGS map of the area shows the development of roads and structures approximately ¼-mile south of the subject property. No structures or development is evident within the immediate area of the project site.
- The 1979 USGS map of the area shows relatively little change when compared to the 1973 USGS map. The subject property appears unchanged.
- The 2015 USGS map of the area shows the development of roads east of Menifee Road and south of McCall Boulevard. Development of Boulder Ridge Elementary School is shown. No structures or development is evident within the immediate area of the project site.

- The 2018 USGS map of the area shows relatively little change when compared to the 2015 USGS map. However, it shows a road bisecting the property. The subject site remains vacant and undeveloped.

None of the historic USGS maps reviewed show any development of railroad tracks, utility easements, or bridges on the subject property.

3.0 SITE VISIT

Summary: A site inspection was conducted on July 28, 2022. The subject property was active with construction equipment, portable construction offices, numerous shipping containers (aka, PODS), as well as stockpiles of various materials (earth, fines from grading, gravel, etc.). It appears these uses are supporting the development of the adjacent property to the south. No building foundations or remnants were observed on the subject property. No evidence of underground storage tanks, stained soils, electrical transformers, or seepage pits were present. High voltage power lines were observed along the eastern edge of the property adjacent to Menifee Road. Refer to Appendix C for photographs depicting the site and surrounding properties.

3.1 PROPERTY EVALUATION

On-Site Observations

Mr. Frank Amendola and Giang Ngo of Lilburn Corporation conducted a site survey/property evaluation on July 28, 2022. Table 1 presents a summary of the site survey/property evaluation.

Table 1
Summary of Site Reconnaissance

Observed on-site?	Yes	No
Existing structures		●
Power line towers	●	
Evidence of past uses (foundations, debris, roads)		●
Hazardous substances and/or petroleum products (including containers)		●
Aboveground storage tanks (ASTs) or evidence of ASTs		●
Underground storage tanks (USTs) or evidence of USTs		●
Strong, pungent, or noxious odors		●
Pools of liquid likely to be hazardous materials or petroleum products		●
55-gallon drums		●
Unidentified substance containers		●
PCB-containing equipment		●
Subsurface hydraulic equipment		●
Stains or corrosion on floors, walls, or ceilings		●
Floor drains and sumps		●
Pits, ponds, or lagoons		●
Stained soil and/or pavement		●
Stressed vegetation		●
Waste or wastewater discharges to surface or surface waters on subject site (including stormwater)		●
Wells (irrigation, domestic, dry, injection, abandoned, monitoring)		●
Septic systems		●

Access to property was from Menifee Road and was unrestricted. However, the property was fenced along Junipero Road and E. Heritage Lake Drive. Portions of the property to the west

were being used as a construction staging area for the development of the adjacent property to the south. Numerous shipping containers were evident as well as stockpiles of earth and fines from grading. The eastern portion of the property was vacant and clear of construction uses. Refer to Appendix C for photographs of various views of the subject site and surrounding properties.

No permanent structures or remnants of foundations were observed during the site visit. No discoloration of soils was evident and no remnants of underground storage tanks were observed during the visual site inspection. Although high voltage power lines are present on the eastern portion of the subject property along Menifee Road, there were no electrical transformers observed. Signage adjacent to Menifee Road near the site indicates the presence of underground high pressure gas lines.

Surrounding Land Uses

A summary description of surrounding land uses follows:

West Land Uses
Land uses to the west of the subject property consist of Junipero Road and Boulder Ridge Elementary School.

South Land Uses
Land uses to the south of the subject property include undeveloped property. However, it was being developed at the time of the site visit. A construction fence was evident.

North Land Uses
Land uses north of the subject property consist of E. Heritage Lake Drive and single-family homes.

East Land Uses
Land uses east of the subject property consist of Menifee Road and single-family homes.

3.2 PROPERTY OWNER/AGENT INTTERVIEWS

No interviews with the current landowner as no one was available that was familiar with prior uses.

4.0 LIMITED SOIL SAMPLING AND ANALYSIS

Summary: Laboratory results of four soil samples collected did not indicate any issues of concern related to any residual pesticides or biosolids. Appendix D includes the Limited Subsurface Investigative Report and Laboratory testing results, which are summarized below.

4.1 PESTICIDE AND BIOSOLID SOIL SAMPLE LOCATIONS AND PROCEDURES

Samples were collected from depths of 6 inches below grade (18 samples), with the aid of a hand auger. Prior to sampling and between samples, reusable drilling and sampling equipment was cleaned using an Alconox wash and two potable water rinses prior to the beginning of the project and before collecting each soil sample to ensure that cross-contamination of samples did not occur. The sample packaging consisted of placing the soil directly into laboratory provided containers. The field crew used new nitrile gloves for each sample collection to prevent cross contamination. The samples were labeled, sealed, recorded on chain-of-custody forms and stored in a chilled ice chest pending delivery to the laboratory.

4.2 LABORATORY ANALYSIS

The laboratory composited the discrete samples at a 3:1 ratio for laboratory analysis. The soil samples and completed chain-of-custody forms were relinquished to SunStar Laboratories Inc., in Lake Forest, California, a State-of-California certified laboratory for analysis.

4.3 ANALYTICAL RESULTS

All analytical results for organochlorine pesticides in the four samples were non-detect, indicating the soil is not impacted by organochlorine pesticides.

The findings were as follows:

- No indications of staining or significant impacts based on field observations.
- Soil analysis for OCPs and arsenic were below the specified laboratory report limits and applicable screening limits.
- IDW was not generated for this investigation.
- Groundwater was not encountered to the total depth of 0.5 feet bgs.

Based on the field observations and laboratory data, evidence of significant impairment was not identified in the areas accessible and investigated, and at the time the investigation was conducted. Concentrations of detected analytes were below applicable residential and commercial screening levels.

Based on the soil testing conducted, there is no indication of a REC due to potential biosolid application to the subject property. Refer to Appendix D for the comprehensive soil analysis results, prepared by Terracon.

5.0 GEOLOGY AND HYDROGEOLOGY

Summary: No geologic or hydrogeologic concerns were encountered during the site visit, which would be considered "an impairment" to the use of the subject site or a REC. According to the Environmental Data Resources, Inc. (EDR) report the project site is not within the 100-year or 500-year flood plain. Refer to Appendix E for the EDR Report.

5.1 GEOLOGY

Topography

The topography of the subject site is relatively flat and varies little from north to south. The subject site is at an elevation of approximately 1461 feet above mean sea level (amsl). The subject property generally falls from south to north and should not create concerns regarding landslides, erosion, or ground failure. Therefore, development of the site is not anticipated to be impaired.

Seismic Fault Systems

According to the Southern California Earthquake Data Center (www.data.scec.org), several fault systems are located within relatively close proximity to the subject site. The subject site lies on the western edge of the San Jacinto Fault Zone that is capable of producing a maximum credible earthquake magnitude (M_w) of 6.5-7.5. The most recent surface rupture was on April 9, 1968.

Earthquakes, due to their ground acceleration and shifting, can cause major damage to buildings and create dangerous hazards to people through injury or death. Development projects in the seismically-active southern California region must mitigate these potential hazards through strict adherence to the California Building Code (CBC) and implementing recommendations from geotechnical engineers.

5.2 REGIONAL HYDROLOGY AND GROUNDWATER

FEMA Flood Zone Mapping

According to the Environmental Data Resources, Inc. (EDR) report included as Appendix E, the project site is located within Flood Plain Panel 06065C and is not within the 100-year or 500-year flood plain.

Groundwater/Well Data

The EDR report identifies 16 wells located with a 1-mile radius of the subject property, none of which are located within a 1/8-mile radius. All of the wells within the 1-mile radius are either cross-gradient or down-gradient from the subject property.

6.0 LOCAL AGENCY REVIEW

Summary: The County of Riverside Department of Environmental Health-Hazardous Materials Division was contacted as part of the EDR records search. As of August 8, 2022, the records request is pending. Other records reviewed include County of Riverside Building Department, Sanborn Fire Insurance maps, City of Menifee-Planning Division, and local RADON reporting data.

Various local (County) agencies maintain databases or records which are useful for evaluating the history of a property, and which may provide indications pertaining to the past uses of the property and any potential environmental concerns. For the purposes of this ESA, records reviewed are presented below.

- County of Riverside Environmental Health Division, Hazardous Material Department
- County of Riverside Building Department
- City of Menifee Planning Division
- Sanborn Fire Insurance Mapping

County of Riverside Building Department

A review of the County of Riverside Building Department records for building permits issued on the subject property were as follows: On November 2, 2004, a grading permit was issued on the Subject Site for a grading stockpile. The permit description included the following language: Import Stockpile For TR31457. The permit is no longer active.

County of Riverside Environmental Health Department, Hazardous Material Division

The County of Riverside Department of Environmental Health, Hazardous Materials Division was contacted for a hazard's records search. As of August 8, 2022, the records request finding continues to be pending.

City of Menifee Planning Division

The City of Menifee Planning Division was contacted. No planning records were found on the subject site.

Sanborn Fire Insurance Mapping

The Sanborn Maps were originally created for assessing fire insurance liability in urbanized areas in the United States. No Sanborn maps covering the subject property were available for review.

Area Radon Information

No testing for radon was performed as part of this ESA, however a review of available information for the subject area (zip code 92585), revealed that six (6) tests for radon gas within structures have been performed in the area and none of the tests performed indicated radon levels within the structures in excess of 4 pCi/L[2] (Picocuries Per Liter).

[2] 4 pCi/L is the EPA lower action limit for habitable structures. Levels in excess of 4 pCi/L typically require remediation.

7.0 REGULATORY REVIEW

Summary: A review of Federal and State environmental databases revealed no environmental concerns or issues directly related to the site, which would be considered "an impairment" or REC. However, the review of the EDR records search revealed several sites of potential concern within the vicinity. These sites appear to be in compliance with applicable hazardous waste regulations as they are either a permitted operation, actively in remedial work, or remedial work has been completed. These sites are not anticipated to impact the subject property as they are located either a greater distance than would warrant establishment of a REC or are cross-gradient or down-gradient of the subject site and applicable water flow. Refer to Appendix E for additional information.

The State of California and various federal government agencies investigate and/or track numerous environmental concerns on a regional basis. For the purposes of this ESA, the following agency records were reviewed for a one-mile radius of the subject property.

FEDERAL RECORDS

NPL: National Priority List
Source: EPA
Telephone: N/A
National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Proposed NPL: Proposed National Priority List Sites
Source: EPA
Telephone: N/A
This database includes site proposed for listing in the NPL database.

DELISTED NPL: National Priority List Deletions
Source: EPA
Telephone: N/A
The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establish the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

NPL LIENS: Federal Superfund Liens
Source: EPA
Telephone: 205-564-4267
Federal Superfund Liens. Under the authority granted the USEPA by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or

when the property owner receives notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System
Source: EPA
Telephone: 703-412-9810
CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by States, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS includes sites that are either proposed for or on the National Priorities List (NPL), and sites that are in the screening and assessment phase for possible inclusion on the NPL.

CERCLIS - NFRAP: No Further Remedial Action Planned
Source: EPA
Telephone: 703-412-9810
As of February 1995, CERCLIS sites designated "No Further Remedial Action Planned" (NFRAP) have been removed from CERCLIS. NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the need for the site to be placed on the NPL, or the contamination was not serious enough to require Federal Superfund action or NPL consideration. EPA has removed approximately 25,000 NFRAP sites to lift the unintended barriers to the redevelopment of these properties and has archived them as historical records so EPA does not needlessly repeat the investigations in the future. This policy change is part of the EPA's Brownfields Redevelopment Program to help cities, States, private investors and affected citizens to promote economic redevelopment of unproductive urban sites.

LIENS 2: CERCLA Lien Information
Source: EPA
Telephone: 202-564-6023
Database provides information as the identity of sites and properties that have used Superfund funds.

CORRACTS: Corrective Action Report
Source: EPA
Telephone: 800-424-9346
CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

RCRA: Resource Conservation and Recovery Act Information
Source: EPA
Telephone: 415-495-8895
RCRA Info is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS). The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as

defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month. Large quantity generators (LQGs) generate over 1,000 kg of hazardous waste, or over 1kg of actual hazardous waste per month. Transporters are individuals or entities that move hazardous waste from the generator off-site that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

US ENG CONTROLS: Engineering Controls Sites List
Source: Environmental Protection Agency
Telephone: 703-603-8905
A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

US INST CONTROL: Sites with Institutional Controls
Source: Environmental Protection Agency
Telephone: 703-603-8905
A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

ERNS: Emergency Response Notification System
Source: EPA/NTIS
Telephone: 202-267-2180
Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

HMIRS: Hazardous Materials Information Reporting System
Source: U.S. Department of Transportation
Telephone: 202-366-4555
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

DOT OPS: Incident and Accident Data
Source: Department of Transportation, Office of Pipeline Safety
Telephone: 202-366-4595
Pipeline safety and incident report database.

CDL: Clandestine Drug Labs
Source: Department of Toxic Substances Control
Telephone: 916-255-6504
A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

US BROWNFIELDS: A Listing of Brownfields Sites
Source: Environmental Protection Agency
Telephone: 202-566-2777
Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assessment Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients-States, political subdivisions, territories, and Indian tribes become Brownfields Cleanup Revolving Loan Fund (BCRLF) cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

DOD: Department of Defense Sites
Source: USGS
Telephone: 703-692-8801
This data sets consists of federally owned or administered lands, administered by the Department of Defense, that have any equal to or greater than 640 acre of the United States, Puerto Rico, and the U.S. Virgin islands.

FUDS: Formerly Used Defense Sites
Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

LUCIS: Land Use Control Information System
Source: Department of the Navy
Telephone: 843-820-7326
Database contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

CONSENT: Superfund (CERCLA) Consent Decrees
Source: EPA Regional Offices
Telephone: Varies
Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters. Date of Government Version.

ROD: Records of Decision
Source: NTIS
Telephone: 703-416-0223
Record of Decision. ROD documents mandate a permanent remedy at a NPL (Superfund) site containing technical and health information to aid in the cleanup.

UMTRA: Uranium Mill Tailings sites
Source: Department of Energy
Telephone: 505-845-0011
Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized. In 1978, 24 inactive uranium mill tailings sites in Oregon, Idaho, Wyoming, Utah, Colorado, New Mexico, Texas, North Dakota, South Dakota, Pennsylvania, and on Navajo and Hopi tribal lands, were targeted for cleanup by the Department of Energy.

ODI: Open Dump Inventory
Source: Environmental Protection Agency
Telephone: 800-424-9346
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
Source: EPA
Telephone: 415-972-3336
A listing of illegal dump sites located on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

MINES: Mines Master Index File
Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959

TRIS: Toxic Chemical Release Inventory System
Source: EPA
Telephone: 202-566-0250
Toxic Release Inventory System. TRIS identifies facilities that release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

TSCA: Toxic Substances Control Act
Source: EPA
Telephone: 202-260-5521
Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

FTTS: FIFRA/TSCA Tracking System – FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act)/TSCA(Toxic Substance Control Act)
Source: EPA
Telephone: 202-566-1667
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

FTTS INSP: FIFRA/TSCA Tracking System – FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act)/TSCA(Toxic Substance Control Act)
Source: EPA
Telephone: 202-564-1667

HIST FTTS: FIFRA/TSCA Tracking System Administration Case Listing
Source: EPA
Telephone: 202-564-2501
Database tracks establishments that generate pesticide use within the course of the calendar year.

SSTS: Section & Tracking System
Source: EPA
Telephone: 202-564-4203
Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

ICIS: Integrated Compliance Information System
Source: EPA
Telephone: 202-564-5088
The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

PADS: PCB Activity Database System
Source: EPA
Telephone: 202-566-0500
PCB Activity Database. PADS Identifies generators, transporters, commercial stores and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

MLTS: Material Licensing Tracking System
Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements.

RADINFO: Radiation Information Database
Source: EPA
Telephone; 202-343-9775
Contains information about facilities that are regulated by U.S. EPA regulations for radiation and radioactivility.

FINDS: Facility Index System/Facility Identification Initiative Program Summary Report
Source: EPA
Telephone: 415-947-8000
Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

RAATS: RCRA Administrative Action Tracking System
Source: EPA
Telephone: 202-564-4104
RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA retains a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

BRS: Biennial Reporting System
Source: EPA/NTIS
Telephone: 800-424-9346
The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

STATE AND LOCAL RECORDS:

HIST CAL-SITES: Calsites Database
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

SCH: School Property Evaluation Program
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the Cal Sites category depending on the level of threat to public health and safety or the environment they pose.

TOXIC PITS: Toxic Pits Cleanup Act Sites
Source: State Water Resources Control Board
Telephone: 916-227-4364
Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

SWF/LF (SWIS): Solid Waste Information System
Source: Integrated Waste Management Board
Telephone: 916-341-6320
Active, Closed and Inactive Landfills. SWF/LF records typically contain an inventory of solid waste disposal facilities or landfills. These may be active or inactive facilities or open dumps that failed to meet RCRA Section 2004 criteria for solid waste landfills or disposal sites.

WMUDS/SWAT: Waste Management Unit Database
Source: State Water Resources Control Board
Telephone: 916-227-4448
Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

CA WDS: Waste Discharge system
Source: State Water Resources Control Board
Telephone: 916-341-5227
Sites that have been issued waste discharge requirements.

CORTESE: "Cortese" Hazardous Waste & Substance Sites List
Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
The sites for the list are designated by the State Water Resources Control Board (LUST), the Integrated Waste Management Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

SWRCY: Recycler Database
Source: Department of Conservation
Telephone: 916-323-3836
A listing of recycling facilities in California.

LUST: Geotracker's Leaking Underground Fuel Tank Report
Source: State Water Resources Control Board
Telephone: Per Region
Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

CA FID UST: Facility Inventory Database
Source: California Environmental Protection Agency
Telephone: 916-341-5851
The facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resources Control Board.

SLIC: Statewide SLIC Cases
Source: State Water Resources Control Board
Telephone: 886-480-1028
The Spills, Leaks, Investigations, and Cleanups (SLIC) listings includes unauthorized discharges from spills and leaks, other than from underground storage tanks or other regulated sites.

UST: Active UST Facilities
Source: State Water Resources Control Board
Telephone: 916-480-1028
Active UST facilities gathered from the local regulatory agencies.

UST MENDOCINO: Mendocino County UST Database
Source: Department of Public Health
Telephone: 707-463-4466
A list of underground storage tanks in Mendocino County.

HIST UST: Hazardous Materials Storage Container Database
Source: State Water Resources Control Board
Telephone: 916-341-5851
The Hazardous Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

AST: Aboveground Petroleum Storage Tank Facilities
Source: State Water Resources Control Board
Telephone: 916-341-5712
Registered Aboveground Storage Tanks.

LIENS: Environmental Liens Listing
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
A listing of property locations with environmental liens for California where DTSC is a lien holder.

SWEEPS UST: SWEEPS UST Listing
Source: State Water Resources Control Board
Telephone: N/A
Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1980s? The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

CHMIRS: California Hazardous Material Incident Report System
Source: Office of Emergency Services
Telephone: 916-845-8400
California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

NOTIFY 65: Proposition 65 Records
Source: State Water Resources Control Board
Telephone: 916-445-3846
Proposition 65 Notification Records. NOTIFY 65 contains facility notifications about any release which could impact drinking water and thereby expose the public to a potential health risk.

DEED: List of Deed Restrictions
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
The use of recorded land use restrictions is one of the methods the DTSC uses to protect the public from unsafe exposures to hazardous substances and wastes.

VCP: Voluntary Cleanup Program Properties
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

DRY CLEANERS: Cleaner Facilities
Source: Department of Toxic Substances Control
Telephone: 916-327-4498
A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial, garment pressing and cleaner's agents, linen supply, coin-operated laundries and cleaning, drycleaning plants, except rugs, carpet and upholstery cleaning, industrial launders, laundry and garment services.

WIP: Well Investigation Program Case List
Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Well investigation program case in the San Gabriel and San Fernando Valley area.

CDL: Clandestine Drug Labs
Source: Drug Enforcement Administration
Telephone: 202-307-1000
Database provides a listing of clandestine drug lab locations.

RESPONSE: State Response Sites
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

HAZNET: Hazardous Waste Information System
Source: California Environmental Protection Agency
Telephone: 916-255-1136
Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the Department of Toxic Substances Control (DTSC). The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method.

EMI: Emissions Inventory Data
Source: California Air Resources Board
Telephone: 916-322-2990
Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

HAULERS: Registered Waste Tire Haulers Listing
Source: Integrated Waste Management Board
Telephone: 916-341-6422
A listing of registered waste tire haulers.

ENVIROSTOR: EnviroStor Database
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides

additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

TRIBAL REORDS

INDIAN RESERV: Indian Reservations
Source: USGS
Telephone: 202-208-3710
This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

INDIAN LUST: Leaking Underground Storage Tanks on Indian Land
Source: Environmental Protection Agency
Telephone: 617-918-1313
Leaking Underground Storage Tanks on Indian land in Arizona, California, New Mexico and Nevada

INDIAN UST: Underground Storage Tanks on Indian Land
Source: EPA Region 9
Telephone: 415-972-3368
Underground Storage Tanks on Indian land in Arizona, California, New Mexico and Nevada

HISTORICAL AND OTHER DATABASE(S)

Depending on the geographic area covered by the EDR Report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included.

Other Databases

Manufactured Gas Plants: EDR Proprietary Manufactured Gas Plants
The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

EDR Historical Auto Stations: EDR Proprietary Historic Gas Stations
EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include

gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc.

EDR Historical Cleaners: EDR Proprietary Historic Dry Cleaners
EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc.

7.1 TARGET PROPERTY SEARCH RESULTS

A search of available environmental records was conducted by Environmental Data Resources, Inc. (EDR) and reviewed a part of this ESA. The EDR database report meets the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) for the evaluation of environmental risk associated with a parcel of real estate. The subject property was not identified on any of the databases searched.

7.2 SURROUNDING SITES SEARCH RESULTS

EDR was utilized to conduct a search of environmental databases within a 1-mile radius of the subject site to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) for the evaluation of environmental risk associated with a parcel of real estate. Identified properties that are down-gradient of the subject site are not listed herein. Additionally, some identified properties are listed on multiple databases and have been excluded from the duplicative databases herein. Refer to Appendix E for the EDR Report.

STANDARD ENVIRONMENTAL RECORDS

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database include: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites. A review of the ENVIROSTOR list has revealed that there are 4 ENVIROSTOR sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Dir/Dist	Map ID	Page
Menifee Valley Ranch School	McCall Blvd Menifee Street	SE 0 – 1/8	1	8
McCall Mesa K-8 School	McCall Blvd Junipero	SW 0-1/8	2	11

Equal/Higher Elevation	Address	Dir/Dist	Map ID	Page
Elementary School #1	Chambers Avenue	WSW ½-1	3	14
Proposed Elementary	Rouse Road	W ½-1	4	17

This category contains proposed and existing school sites that were being evaluated by DTSC for possible hazardous materials contamination. The investigations did not reveal any contamination at the sites that would be considered a REC and no further action was required. This listing does not represent a release of hazardous are therefore the sites are not considered a REC.

Orphan Sites: These are sites that cannot be mapped because of poor or inadequate information relating to the location of the site in relation to the subject site. Further information was not obtained for these sites.

Based on the information obtained from the EDR report, all of the sites could be eliminated as potential locations of environmental concern to the subject site as they are located greater than one mile from the project site or are a permitted (permit issued to operate) local/State/federal operation.

7.3 VAPOR ENCROACHMENT

The purpose of the preliminary vapor encroachment screen is to identify a vapor encroachment condition (VEC), which is the presence or likely presence of vapor chemicals of concern (COC) in subsurface soils at the site caused by the release of volatile organic compounds from contaminated soils or groundwater either on or near the site. The potential for VECs beneath the site was evaluated using EDR's Vapor Encroachment Screen in accordance with ASTM E 2600-10 Standard Guide for Vapor Encroachment Screening. The evaluation included performing a Search Distance Test to identify if there are any known or potential contaminated properties surrounding or up gradient of the site within specific search radii, a COC test (for those known or suspect contaminated sites identified within the Search Distance Test) to evaluate whether or not COCs are likely to be present, and a Critical Distance Test to evaluate whether or not COCs in a contaminated plume may be within the critical distance of the site (100 feet for non-petroleum hydrocarbon contaminants and 30 feet for petroleum hydrocarbons contaminants).

A review of the Vapor Encroachment Screen, as provided by EDR, and dated June 10, 2022 has revealed two COC site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Dir/Dist	Map ID	Page
Menifee Valley Ranch School	McCall Blvd Menifee Street	SE 1/10 – 1/3	1	8
McCall Mesa K-8 School	McCall Blvd Junipero	SSW 1/10-1/3	2	11

These sites are not anticipated to present any environmental impact to the subject property as the listing herein is a required reporting of their operations and not a violation of local, state, or federal regulations. Refer to Appendix E-1 for Vapor Encroachment Screen Report.

8.0 CONCLUSION

Summary: The review of the EDR records search revealed no sites of concern within the vicinity of the subject property that could represent a REC.

Based on a visual inspection of the subject site and the surrounding area; an environmental records search and review of local, federal, and State databases; and in accordance with the limitations presented in this report, Lilburn Corporation presents the following conclusions concerning the subject site:

- No evidence was observed that the property has been used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility. Additionally no evidence was observed that there have been any previously damaged or discarded automotive or industrial batteries, or pesticides, paints, or other chemicals individually stored on or used at the property or at the subject site. No industrial drums (typically 55 gal (208 L)) or sacks of chemicals were observed on the property.
- No evidence that fill dirt has been brought onto the property that originated from a contaminated site or from an unknown origin was observed. Refer to Section 4.0 for soil sampling findings.
- No pits, ponds, or lagoons were observed on the property in connection with waste treatment or waste disposal.
- No signs or evidence or of stained soil were observed on the property.
- No evidence was observed of any registered or unregistered storage tanks (above or underground) located on the property and no observations of any vent pipes, fill pipes, or access ways indicating a fill pipe protruding from the ground on the property or adjacent to any structure located on the property were made.
- No indication or evidence of leaks, spills, or staining by substances other than water, or foul odors, associated with any flooring drains, walls, ceilings or exposed grounds on the property was observed.
- No observations were made of evidence that any hazardous substances or petroleum products, unidentified waste materials, tires, automotive or industrial batteries, or any other waste materials have been buried and/or burned on the property.
- No transformer, capacitor, or any hydraulic equipment for which there are any records indicating the presence of PCBs was observed.
- No evidence was observed indicating any adjoining property was used as a gasoline station, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility.

- Local records reviewed to date have not revealed environmental concerns or issues that would be considered an immediate impairment to property development (pending San Bernardino County Fire Department findings).
- No geologic or hydrogeologic impairments to the subject site were encountered.
- Federal and State environmental databases revealed no environmental issues, which would be considered "an impairment" or REC to the subject site. Refer to Appendix E for a copy of the EDR Reports.

Based on the field reconnaissance of the site a Phase I and limited Phase II site assessment is sufficient to evaluate the property in question and additional site investigations are not recommended.

CERTIFICATION

I, Frank Amendola, certify and agree that:

(1) The inspector has no present or contemplated future interest in the site inspected.

(2) The inspector has no personal interest in or bias with respect to the subject matter of the assessment report or the participants to the sale. This Site Assessment Report is not based in whole or in part upon the race, color, or national origin of the prospective owners or occupants of the site inspected, or upon the race, color or national origin of the present owners or occupants of the properties in the vicinity of the site inspected.

(3) The inspector has personally inspected the site and has made an exterior inspection of all adjacent properties identified in the report. To the best of the inspector's knowledge and belief, all statements and information in this Site Assessment Report are true and correct, and the inspector has not knowingly withheld any significant information.

(4) The legal description and address furnished is correct according to the information furnished to the inspector.

(5) This Site Assessment Report was prepared in conformity with and is subject to the requirements of the Code of Professional Ethics and Standards of Professional Conduct of the environmental organizations with which the inspector is affiliated.

(6) All conclusions and opinions concerning the subject site that are set forth in the Site Assessment Report were prepared by the inspector whose signature appears below.

(7) I declare that to the best of my professional knowledge and belief, I meet the definition of an Environmental Professional as defined in ASTM E 1527-05 and 40 CFR 312.10. I have the specific qualification based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed all appropriate inquiries in conformance with the standard and practices set forth in 40 CFR Part 312.

Prepared By:



Frank Amendola

QUALIFICATIONS STATEMENT

Lilburn Corporation is a full service environmental consulting company with extensive experience in the completion of Phase I ESAs having completed more than 50 ESAs since 1999. Lilburn staff responsible for preparation of Phase I ESAs (including this document) have extensive experience in completing Phase I ESAs in accordance with the current American Society of Testing and Materials standard practice document (ASTM E 1527-05). The resumes of the individual environmental professionals responsible for the completion of this Phase I ESA are included in Appendix F.

This Phase I ESA was completed under the direction of an "Environmental Professional" as defined in ASTM E 1527-005 and 40 CFR 312.10. The Environmental Professional was involved in the planning of the site reconnaissance and the interviews as well as the review and preparation of the report.

LIMITATIONS

The services described in this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. Not laboratory testing was performed in conjunction with this report. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, nor the use of segregated portions of this report.

The purpose of an environmental assessment is to reasonably evaluate the potential for or actual impact of past practices on a given site area. In performing an environmental assessment, it is understood that a balance must be struck between a reasonable inquiry into the environmental issues and an exhaustive analysis of each conceivable issue of potential concern. The following paragraphs discuss the assumptions and parameters under which such an opinion is rendered.

No investigation is thorough enough to exclude the presence of hazardous materials at a given site. If hazardous conditions have not been identified during the assessment, such a finding should not therefore be construed as a guarantee of the absence of such materials on the site, but rather as the result of the services performed within the scope, limitations, and cost of the work performed.

Environmental conditions may exist at the site that cannot be identified by visual observation. Where subsurface work was performed, our professional opinions are based in part on interpretation of data from discrete sampling locations that may not represent actual conditions at unsampled locations.

Except where there is express concern of our client, or where specific environmental contaminants have been previously reported by others, naturally occurring toxic substances, potential environmental contaminants inside buildings, or contaminant concentrations that are not of current environmental concern may not be reflected in this document.

REFERENCES

Aerial Photo Decade Package, Environmental Data Resources, Inc., (June 9, 2022)

Historical Topographic Map Report, Environmental Data Resources, Inc., (June 9, 2022)

Summary Radius Map Report, Environmental Data Resources, Inc., (June 9, 2022)

EDR Vapor Encroachment Screen, (June 10, 2022)

Building Report, Environmental Data Resources, Inc., (June 22, 2022)

City of Menifee, Records Search Request. (June 22, 2022).

Certified Sanborn Map Report, Environmental Data Resources, Inc., (June 9, 2022)

Southern California Earthquake Data Center, www.data.scec.org

California City Radon Data, http://www.city-data.com/radon-zones/California/California.html

APPENDIX D
LIMITED PHASE II
SUBSURFACE INVESTIGATION

LIMITED SITE INVESTIGATION

Menifee Development

Northeast Intersection of Junipero Road and McCall Boulevard

Menifee, Riverside County, California

July 18, 2022

Terracon Project No. 60227232



Prepared for:
Lilburn Corporation
San Bernardino, California

Prepared by:
Terracon Consultants, Inc.
Laguna Hills, California

terracon.com

Terracon

Environmental ■ Facilities ■ Geotechnical ■ Materials

Terracon

July 18, 2022

Ms. Cheryl Tubbs
Lilburn Corporation
1905 Business Center Drive
San Bernardino, CA 92408-3460

Telephone: (909) 890-1818
E-mail: cheryl@lilburncorp.com

Re: Proposal for Limited Site Investigation
Menifee Development
Northeast Intersection of Junipero Road and McCall Boulevard
Menifee, Riverside County, California
Terracon Project No. 60227232

Dear Ms. Tubbs:

Terracon Consultants, Inc. (Terracon) is pleased to submit the enclosed Limited Site Investigation report for the above referenced site. This assessment was performed in general accordance with Terracon's Proposal for Limited Site Investigation, dated June 8, 2022, and Terracon's Agreement for Services, executed June 9, 2022.

We appreciate the opportunity to perform these services for Lilburn Corporation . Please contact the undersigned at (949) 864-2078 if you have questions regarding the information provided in the report.

Sincerely,
Terracon Consultants, Inc.

Eric J. St. Michel
Staff Scientist

Todd G. McFarland, P.G., C.H.G.
Environmental Department Manager

Attachments



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APPENDICES

APPENDIX A – EXHIBITS
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LIMITED SITE INVESTIGATION
MENIFEE DEVELOPMENT
NORTHEAST INTERSECTION OF JUNIPERO ROAD AND MCCALL BOULEVARD
MENIFEE, RIVERSIDE COUNTY, CALIFORNIA
Terracon Project No. 60227232
July 18, 2022

1.0 INTRODUCTION

1.1 Site Description

Site Name	Menifee Development
Site Location/Address	Northeast Intersection of Junipero Road and McCall Boulevard, Menifee, Riverside County, California
General Site Description	The property is identified as the Menifee development located northeast of the intersection of Junipero Road and McCall Boulevard in Menifee, Riverside County, California. Terracon understands that the site consists of approximately 17.67-acres of undeveloped land that was previously utilized for agricultural practices.

A topographic map and site diagram are included as **Exhibits 1** and **2** of **Appendix A**, respectively.

1.2 Scope of Work

Terracon conducted a Limited Site Investigation (LSI) at the site, northeast of the intersection of Junipero Road and McCall Boulevard in Menifee, Riverside County, California (the site). The scope of services was conducted to assess potential environmental impacts that may be present as a result of the below-listed recognized environmental conditions (RECs) and/or site concerns. Please note that Terracon did not conduct a Phase I Environmental Site Assessment (ESA) of the property, and that the scope of services was based solely on information provided in Lilburn Corporation's Phase I Environmental Site Assessment and Limited Phase II ESA dated December 2014, and additional information provided by the client.

REC/Site Concern	Description
Former agricultural use	Potential for improper use and/or application of pesticides and herbicides associated with the former agricultural uses.

The objective of the LSI was to assess the presence of chemicals commonly associated with the identified RECs and/or site concerns at concentrations above laboratory reporting limits in the on-site soil. Based on the surficial nature of the identified REC, groundwater and soil vapor sampling were not included in the proposed scope.

1.3 Standard of Care

Terracon's services were performed in a manner consistent with generally accepted practices of the profession undertaken in similar studies in the same geographical area during the same time period. Terracon makes no warranties, either express or implied, regarding the findings, conclusions, or recommendations. Please note that Terracon does not warrant the work of laboratories, regulatory agencies, or other third parties supplying information used in the preparation of the report. These LSI services were performed in accordance with the scope of work agreed with you, our client, as reflected in our proposal and were not restricted by ASTM E1903-19.

1.4 Additional Scope Limitations

Findings, conclusions, and recommendations resulting from these services are based upon information derived from the on-site activities and other services performed under this scope of work; such information is subject to change over time. Certain indicators of the presence of hazardous substances, petroleum products, or other constituents may have been latent, inaccessible, unobservable, nondetectable, or not present during these services, and we cannot represent that the site contains no hazardous substances, toxic materials, petroleum products, or other latent conditions beyond those identified during this LSI. Subsurface conditions may vary from those encountered at specific borings or wells or during other surveys, tests, assessments, investigations, or exploratory services; the data, interpretations, findings, and our recommendations are based solely upon data obtained at the time and within the scope of these services.

1.5 Reliance

This report has been prepared for the exclusive use of and reliance of Lilburn Corporation. Use or reliance by any other parties (except a governmental entity having jurisdiction over the site) is prohibited without the express written authorization of and reliance of Lilburn Corporation and Terracon. Any unauthorized distribution or reuse is at and reliance of Lilburn Corporation's sole risk. Notwithstanding the foregoing, reliance by authorized parties will be subject to the terms, conditions, and limitations stated in the proposal, LSI report, and Terracon's Terms and Conditions. The limitation of liability defined in the terms and conditions is the aggregate limit of Terracon's liability to and reliance of Lilburn Corporation unless otherwise agreed in writing.

2.0 FIELD ACTIVITIES

Terracon's field activities were conducted on June 17, 2022, by a staff geologist with oversight by a California-licensed Professional Geologist (P.G.) with Terracon. A site-specific health and safety plan was utilized by Terracon during field activities for all phases of this assessment.

2.1 Soil Borings and Soil Sampling

On June 17, 2022, Terracon advanced eighteen (18) shallow soil borings using a hand-auger to 0.5 feet below ground surface (bgs). The discrete samples were then composited by the laboratory at a ratio of 3:1, for a total of six (6) analytical samples. The approximate boring locations are shown on **Exhibit 2** of **Appendix A** and are summarized below.

advanced fourteen (14) shallow soil borings (B-1 through B-14) using a hand-auger to 0.5 feet below ground surface (bgs). The approximate boring locations are shown on **Exhibit 2** of **Appendix A** and are summarized below.

Table 2.1 – Soil Boring Summary

Sample ID	Composite Sample ID	Total Depth (feet bgs)	Soil Sample Depth* (feet bgs)	Sample Type	Assessment Area/REC
S-1A	COMP 3:1 (S-1A – S-1C)	0.5	0.5	Grab	Former agricultural use
S-1B					
S-1C					
S-2A	COMP 3:1 (S-2A – S-2C)	0.5	0.5	Grab	Former agricultural use
S-2B					
S-2C					
S-3A	COMP 3:1 (S-3A – S-3C)	0.5	0.5	Grab	Former agricultural use
S-3B					
S-3C					
S-4A	COMP 3:1 (S-4A – S-4C)	0.5	0.5	Grab	Former agricultural use
S-4B					
S-4C					
S-5A	COMP 3:1 (S-5A – S-5C)	0.5	0.5	Grab	Former agricultural use
S-5B					
S-5C					
S-6A	COMP 3:1 (S-6A – S-6C)	0.5	0.5	Grab	Former agricultural use
S-6B					
S-6C					

*Sample depths selected for analytical testing.

Terracon collected soil samples from the soil borings to observe soil lithology, color, moisture content, and staining, if present. The soils encountered generally consisted of dry to damp silty sand and sand to the maximum depth of exploration of 0.5 feet bgs. Indications of staining were not observed.

Terracon's soil sampling program included the collection of one soil sample from each boring. Terracon collected grab soil samples from the barrel of the hand-auger. Samples were retrieved from the sampler and placed in laboratory provided containers. The field crew used new nitrile gloves for each sample collection to prevent cross contamination. The samples were labeled, sealed, recorded on chain-of-custody forms and stored in a chilled ice chest pending delivery to the laboratory.

Reusable drilling and sampling equipment was cleaned using an Alconox® wash and two potable water rinses prior to the beginning of the project and before collecting each soil sample. Investigation derived waste (IDW) was not generated during this investigation.

3.0 LABORATORY ANALYTICAL METHODS

3.1 Soil

A total of eighteen (18) discrete soil samples were collected. The laboratory composited the discrete samples at a 3:1 ratio for laboratory analysis. The soil samples and completed chain-of-custody forms were relinquished to SunStar Laboratories Inc., in Lake Forest, California, a State-of-California certified laboratory for analysis. The selected soil samples were analyzed using standard Environmental Protection Agency (EPA) methods and included:

- organochlorine pesticides (OCPs) by EPA 8081A; and,
- arsenic by EPA 6010B.

4.0 DATA EVALUATION

Terracon screened the analytical data using the current residential and commercial Environmental Screening Levels (ESLs) published by San Francisco Bay Regional Water Quality Control Board (2019, Rev. 2). Arsenic data was additionally evaluated using California Department of Toxic Substances Control (DTSC), Determination of a Southern California Regional Background Arsenic Concentration in Soil. The detection of an analyte at a concentration above a screening level does not necessarily indicate an adverse impact to human health or the environment; however, an exceedance of a screening level may indicate that additional investigation is warranted.

4.1 Soil Analytical Results – OCPs and Arsenic

The soil analytical results for OCPs and arsenic were below the specified laboratory report limits and applicable screening limits, as summarized below.

Table 4.1 – Analytical Summary

	Arsenic (mg/kg)	OCPs[1] (mg/kg)	Toxaphene (mg/kg)
Reporting Limit	<5.0	<0.0050	<0.020
Screening Levels			
DTSC	12	--	--
Residential ESL	--	0.035[2]	0.51
Commercial ESL	--	0.15[2]	2.2

[1] Excludes toxaphene
[2] Aldrin ESL value, lowest screening level for OCPs

The soil analytical results are detailed in the laboratory analytical report and chain-of-custody forms, which are included in **Appendix B**.

5.0 FINDINGS AND CONCLUSIONS

The findings of this LSI are as follows:

- No indications of staining or significant impacts based on field observations.
- Soil analysis for OCPs and arsenic were below the specified laboratory report limits and applicable screening limits.
- IDW was not generated for this investigation.
- Groundwater was not encountered to the total depth of 0.5 feet bgs.

Based on the field observations and laboratory data, evidence of significant impairment were not identified in the areas accessible and investigated, and at the time the investigation was conducted. Concentrations of detected analytes were below applicable residential and commercial screening levels.

6.0 RECOMMENDATIONS

Based on the findings of the LSI, no additional investigation appears warranted at this time.

Geotechnical Engineering Investigation

"The Village at Junipero Apartment Development"
SWC of Menifee Road and Heritage Lakes Drive
Menifee, California

Christiansen & Company
3649 Ninth Street
Riverside, California 92501

Attn.: Mr. Keith Christiansen

Project Number 17802-14
December 9, 2014

NorCal Engineering

Soils and Geotechnical Consultants
10641 Humbolt Street Los Alamitos, CA 90720
(562) 799-9469 Fax (562) 799-9459

December 9, 2014 Project Number 17802-14

Christiansen & Company
3649 Ninth Street
Riverside, California 92501

Attn.: Mr. Keith Christiansen

RE: **Geotechnical Engineering Investigation** - Proposed "The Village at Junipero Apartment Development" - Located at the Southwest Corner of Menifee Road and Heritage Lakes Drive, in the City of Menifee, California

Dear Mr. Christiansen:

Pursuant to your request, this firm has performed a Geotechnical Engineering Investigation in accordance with your authorization of signed proposal dated August 18, 2014 for the above referenced project. The purpose of this investigation is to evaluate the subsurface conditions of the subject site and to provide recommendations for the proposed residential development.

The scope of work included the following: 1) site reconnaissance; 2) subsurface geotechnical exploration and sampling; 3) laboratory testing; 4) engineering analysis of field and laboratory data; 5) and preparation of a geotechnical engineering report. It is the opinion of this firm that the proposed development is feasible from a geotechnical standpoint provided that the recommendations presented in this report are followed in the design and construction of the project.

1.0 Project Description

It is proposed to construct a multi-unit apartment development as shown on the attached conceptual site plan. The project will consist of twenty-four (24) apartment buildings including a new clubhouse and swimming pool on the 19.25-acre property. The two and/or three story buildings will be supported by conventional slab-on-grade foundation systems with perimeter-spread footings and isolated interior footings. Other improvements will consist of asphalt/concrete pavement, hardscape and landscaping. It is assumed that the proposed grading for the entire development will include cut and fill procedures. The latest grading plan shall be reviewed by this firm prior to submittal for city/county approval to determine the need for any additional study and revised recommendations pertinent to the proposed development, if necessary.

2.0 Site Description

The subject property is situated at the southwest corner of Menifee Road and Heritage Lakes Drive, in the City of Menifee. The generally rectangular shaped parcel is elongated in an east to west direction and topography of the relatively level parcel descending gradually from south to north on the order of a few feet. The site is an undeveloped lot currently covered with a low to moderate growth of vegetation consisting of natural grasses and weeds.

3.0 Site Exploration

The investigation consisted of the placement of two (2) subsurface exploratory borings by a truckmounted hollow stem auger to depths of 20 and 50 feet and eleven (11) subsurface exploratory trenches by a backhoe to depths ranging between 5 and 15 feet below current ground elevations. The explorations were visually classified and logged by a field engineer with locations of the subsurface explorations shown on the attached Site Plan. The exploratory borings and trenches revealed the existing earth materials to consist of a fill and natural soil. A detailed description of the subsurface conditions is listed on the excavation logs in Appendix A.

Fill: A fill and/or disturbed top soil classifying as brown, sandy SILT was encountered to a depth of 1 to 1½ feet. These soils were noted to be soft and dry to damp.

Natural: An undisturbed native soil classifying as a brown to grey and red brown, sandy SILT to a fine to coarse grained, silty to clayey SAND was encountered directly beneath the fill and observed to be stiff to very stiff and dense to very dense and damp to moist.

The overall engineering characteristics of the earth material were relatively uniform with each excavation. Groundwater was encountered at a depth of 36 feet and no caving occurred to the depth of our borings.

4.0 Laboratory Tests

Relatively undisturbed samples of the subsurface soils were obtained to perform laboratory testing and analysis for direct shear, consolidation tests, and to determine in-place moisture/densities. These relatively undisturbed ring samples were obtained by driving a thin-walled steel sampler lined with one inch long brass rings with an inside diameter of 2.42 inches into the undisturbed soils.

Standard penetration tests were obtained by driving an unlined steel sampler with an inside diameter of 1.5 inches into the soils. This standard penetrometer sampler was driven a total of eighteen inches with blow counts tallied every six inches. Blow count data is given on the Boring Logs in Appendix A. Bulk bag samples were obtained in the upper soils for expansion index tests and maximum density tests. All test results are included in Appendix B, unless otherwise noted.

4.1 **Field moisture content** (ASTM: D 2216) and the dry density of the ring samples were determined in the laboratory. This data is listed on the logs of explorations.

4.2 **Sieve analyses** (ASTM: D 422-63) and the percent by weight of soil finer than the No. 200 sieve (ASTM: 1140) were performed on selected soil samples. These results are shown later within the body of this report.

4.3 **Maximum density tests** (ASTM: D-1557-07) were performed on typical samples of the upper soils. Results of these tests are shown on Table I.

4.4 **Expansion index tests** (ASTM: D 4829-07) were performed on remolded samples of the upper soils. Results of these tests are provided on Table II.

4.5 **Atterberg Limits** (ASTM: D 4318-05) consisting of liquid limit, plastic limit and plasticity index were performed on representative soil samples. Results are shown on Table III.

4.6 **Corrosion tests** consisting of sulfate, pH, resistivity and chloride analysis to determine potential corrosive effects of soils on concrete and underground utilities. Test results are provided on Table IV.

4.7 **R-Value test** per California Test Method 301 was performed on a representative sample, which may be anticipated to be near subgrade to determine pavement design. Result provided within pavement section design section of report.

4.8 **Direct Shear tests** (ASTM: D-3080) were performed on undisturbed and disturbed samples of the subsurface soils. The test is performed under saturated conditions at loads of 1,000 lbs./sq.ft., 2,000 lbs./sq.ft., and 3,000 lbs./sq.ft. with results shown on Plates A to C.

4.9 **Consolidation tests** (ASTM: D-2435) were performed on undisturbed samples to determine the differential and total settlement which may be anticipated based upon the proposed loads. Water was added to the samples at a surcharge of one KSF and the settlement curves are plotted on Plates D to G.

5.0 Geologic Setting

The property is located in the Peninsular Ranges geomorphic province of California. The Peninsular Ranges province extends from the Los Angeles Basin southeast to Baja California and from the Pacific Ocean eastward to the Coachella Valley and Colorado Desert. The province consists of numerous northwest to southeast-trending mountain ranges and valleys that are geologically controlled by several major active faults. The site is located in the central portion of the Perris block, a generally stable area situated between two of these major faults; the Chino /Elsinore (roughly 8 miles southwest) and San Jacinto (roughly 10 miles northeast) fault zones.

5.1 Site Geology

The USGS Open File Report for the Romoland 7.5 minute quadrangle assigns the soil materials underlying the site as alluvial deposits bordering Cretaceous granitic rocks at the very western edge of the property. Exploration at the site encountered existing earth materials to consist of a fill and natural soil. A detailed description of the subsurface conditions is listed on the excavation logs in Appendix A.

5.2 Surface Fault Rupture

The property is not located in a Riverside County Recommended Earthquake Fault Study Zone, a Riverside County Land Information System (RCLIS) fault zone or an Alquist-Priolo (AP) earthquake fault zone. No indications of natural lineaments or other fault-related features indicative of Holocene or older faulting were noted in review of topographic and geologic maps pertaining to the area and no indications of faulting were noted during our reconnaissance at and in the vicinity of the site.

Based on our evaluation, we conclude that there are no active or potentially active faults trending towards or through the parcels, and additional fault investigations are not necessary. The potential for surface fault rupture to occur at the parcels is considered low. As is the case with most of southern California, the properties are expected to experience strong ground shaking during the lifetime of the project.

5.3 Slope Stability-Landslides, Debris Flows and Rock Falls

The property is not mapped in an area considered susceptible to seismically induced landslides or rockfalls as shown on the Riverside County Earthquake-Induced Slope Instability Map. The property is situated on gently sloped ground well away from topography with any significant relief. The potential for landslides, debris flows or rock falls to impact the site is considered low.

5.4 Subsidence and Fissuring

The site is located in an area designated on the Riverside County Land Information System as "susceptible" to subsidence. According to the Riverside County Hazards report (Earth Consultants International, 2001), subsidence in Riverside County has been linked to significant fluctuations in groundwater levels within deep alluvial basins, and generally, the subsidence occurs throughout the valley region. Three areas have been identified with documented subsidence; the Elsinore Trough, the San Jacinto Valley, and the southern Coachella Valley.

Fissuring associated with land subsidence is well-documented in Riverside County. Displacements consisting of fissuring and ground cracking occur at, or near, valley margins. Many areas associated with fissuring are along active faults.

Based on our evaluation, the potential for subsidence and ground fissures at the site is considered low. The property is not situated within any of the three areas of Riverside County associated with subsidence and resulting fissuring, and the property is not situated at a valley margin or along an active fault.

5.5 Seiches

The parcels are not in proximity to an enclosed or partially enclosed body of water or basin with the potential to hold water; the properties are not subject to seiche inundation.

5.6 Water Erosion

The parcels are not situated in a flood zone, but could be susceptible to erosion by water without appropriate erosion control measures.

6.0 Seismicity Evaluation

The proposed development lies outside of any Alquist Priolo Special Studies Zone and the potential for damage due to direct fault rupture is considered very remote. The site is located in an area of high regional seismicity and a maximum horizontal ground acceleration of 0.40g may occur from a Magnitude 6.8 earthquake along the Elsinore (Glen Ivy) fault zone, which is located approximately 13 kilometers away. Ground shaking originating from earthquakes along other active faults in the region is expected to induce lower horizontal accelerations due to smaller anticipated earthquakes and/or greater distances to other faults.

The seismic design of the project has been updated to the latest 2010 ASCE 7-10 (with July 2013 errata) standards and the mapped seismic ground motions were provided by using the Java based program available from the United States Geological Survey (USGS) website: http://geohazards.usgs.gov/designmaps/us/application.php. The earthquake design parameters are in accordance with the 2013 California Building Code (CBC) and are listed below.

Seismic Design Parameters

Site Location	Latitude	33.724°
	Longitude	-117.156°
Site Class		D
Risk Category		I/II/III
Maximum Spectral Response Acceleration	S_S	1.500g
	S_1	0.600g
Adjusted Maximum Acceleration	S_{MS}	1.500g
	S_{M1}	0.900g
Design Spectral Response Acceleration Parameters	S_{DS}	1.000g
	S_{D1}	0.600g

7.0 Liquefaction Evaluation

The site is expected to experience ground shaking and earthquake activity that is typical of Southern California area. It is during severe ground shaking that loose, granular soils below the groundwater table can liquefy. A review of the exploratory boring log and the laboratory test results on selected soil samples obtained indicate the following soil classifications, field blowcounts and amounts of fines passing through the No. 200 sieve.

Field Blowcount and Gradation Data

Location	Classification	Blowcounts (blows/ft)	Relative Density	% Passing No. 200 Sieve
B-1 @ 5'	SC	59	Very Dense	47
B-1 @ 10'	SM	73	Very Dense	22
B-1 @ 15'	SC	46	Very Dense	32
B-1 @ 20'	SM	67	Very Dense	10
B-1 @ 25'	SC	>50	Very Dense	32
B-1 @ 30'	SM	72	Very Dense	19
B-1 @ 35'	CL	46	Very Dense	73
B-1 @ 40'	SC	62	Very Dense	32
B-1 @ 45'	SM	39	Very Dense	17
B-1 @ 50'	SM	>50	Very Dense	20

Groundwater was encountered at a depth of 36 feet below existing ground surface from our field exploration. Based upon information in the City of Riverside Public Safety Element "Liquefaction Zones (2006)", the subject site is situated in an area of low generalized liquefaction susceptibility.

Our analysis indicates the potential for liquefaction at this site is considered to be low due to the density of the subsurface soils. The seismic-induced settlements shall be on the order of less than one-half inch and should occur rather uniformly across the lot. Differential settlements would be on the order of less than one-half inch over a 50 feet distance in the building area. Thus, the design of the proposed construction in conformance with the latest Building Code provisions for earthquake design is expected to provide mitigation of ground shaking hazards that are typical to Southern California.

8.0 Conclusions and Recommendations

Based upon our evaluations, the proposed development is acceptable from a geotechnical engineering standpoint. By following the recommendations and guidelines set forth in our report, the structures will be safe from excessive settlements under the anticipated design loadings and conditions. The proposed development shall meet all requirements of the City Building Ordinance and will not impose any adverse effect on existing adjacent structures.

The following recommendations are based upon geotechnical conditions encountered in our field investigation and laboratory data. Therefore, these surface and subsurface conditions could vary across the site. Variations in these conditions may not become evident until the commencement of grading operations and any unusual conditions which may be encountered in the course of the project development may require the need for additional study and revised recommendations.

It is recommended that site inspections be performed by a representative of this firm during all grading and construction of the development to verify the findings and recommendations documented in this report. The following sections present a discussion of geotechnical related requirements for specific design recommendations of different aspects of the project.

8.1 Site Grading Recommendations

Any vegetation and or demolition debris shall be removed and hauled from proposed grading areas prior to the start of grading operations. Existing vegetation shall not be mixed or disced into the soils. Any removed soils may be reutilized as compacted fill once any deleterious material or oversized materials (in excess of eight inches) is removed. Grading operations shall be performed in accordance with the attached "Specifications for Compacted Fill Operations".

8.1.1 **Removal and Recompaction Recommendations**

All disturbed top soils and fill (about 1 to 1½ feet below existing ground surface) shall be removed to competent native material, the exposed surface scarified to a depth of 12 inches, brought to within 2% of optimum moisture content and compacted to a minimum of 90% of the laboratory standard (ASTM: D-1557) prior to placement of any additional compacted fill soils, foundations, slabs-on-grade and pavement. Grading shall extend a minimum of five horizontal feet outside the edges of foundations or equidistant to the depth of fill placed, whichever is greater.

It is possible that isolated areas of undiscovered fill not described in this report are present on site. If found, these areas should be treated as discussed earlier. A diligent search shall also be conducted during grading operations in an effort to uncover any underground structures, irrigation or utility lines. If encountered, these structures and lines shall be either removed or properly abandoned prior to the proposed construction.

Any imported fill material should be preferably soil similar to the upper soils encountered at the subject site. All soils shall be approved by this firm prior to importing at the site and will be subjected to additional laboratory testing to assure concurrence with the recommendations stated in this report.

Care should be taken to provide or maintain adequate lateral support for all adjacent improvements and structures at all times during the grading operations and construction phase. Adequate drainage away from the structures, pavement and slopes should be provided at all times.

If placement of slabs-on-grade and pavement is not completed immediately upon completion of grading operations, additional testing and grading of the areas may be necessary prior to continuation of construction operations. Likewise, if adverse weather conditions occur which may damage the subgrade soils, additional assessment by the geotechnical engineer as to the suitability of the supporting soils may be needed.

8.1.2 **Fill Blanket Recommendations**

In areas of transition between the underlying native material and engineered fill, additional overexcavation of the native material consisting of a depth of two feet below proposed foundations is required to mitigate the potential of differential settlement. This fill shall extend a minimum of five horizontal feet or to the depth of vertical overexcavation, whichever is greater, beyond the outside edge of the perimeter foundation.

8.2 **Shrinkage and Subsidence**

Results of our in-place density tests reveal that the soil shrinkage will be on the order of 5 to 15% due to excavation and recompaction, based upon the assumption that the fill is compacted to 92% of the maximum dry density per ASTM standards. Subsidence should be 0.2 feet due to earthwork operations. The volume change does not include any allowance for vegetation or organic stripping, removal of subsurface improvements or topographic approximations. Although these values are only approximate, they represent our best estimate of lost yardage which will likely occur during grading. If more accurate shrinkage and subsidence factors are needed, it is recommended that field testing using the actual equipment and grading techniques should be conducted.

8.3 **Temporary Excavations**

Temporary unsurcharged excavations in the existing site materials less than 4 feet high may be made at a vertical gradient unless cohesionless soils are encountered. In areas where soils with little or no binder are encountered, where adverse geological conditions are exposed, or where excavations are adjacent to existing structures, shoring, slot-cutting, or flatter excavations may be required. The temporary cut slope gradients given do not preclude local raveling and sloughing. All excavations shall be made in accordance with the requirements of CAL-OSHA and other public agencies having jurisdiction. Care should be taken to provide or maintain adequate lateral support for all adjacent improvements and structures at all times during the grading operations and construction phase.

8.4 **Foundation Design**

All foundations may be designed utilizing the following safe bearing capacities for an embedded depth of 24 inches into approved fill materials with the corresponding widths:

Allowable Safe Bearing Capacity (psf)

Width (ft)	Continuous Foundation	Isolated Foundation
1.5	2000	2500
2.0	2075	2575
4.0	2375	2875
6.0	2500	3000

The bearing value may be increased by 500 psf for each additional foot of depth in excess of the 24-inch minimum depth, up to a maximum of 4,000 psf. Any foundations located along the property lines or where lateral overexcavation is not possible may utilize a safe bearing capacity of 1,500 psf. A one third increase may be used when considering short-term loading and seismic forces.

All continuous foundations shall be reinforced a minimum of one No. 4 bar, top and bottom. Isolated foundations shall be reinforced per the discretion of the project structural engineer. A representative of this firm shall inspect all foundation excavations prior to pouring concrete.

8.5 **Settlement Analysis**

Resultant pressure curves for the consolidation tests are shown on Plates D to G. Computations utilizing these curves and the recommended safe bearing capacities reveal that the foundations will experience settlements on the order of 3/4 inch and differential settlements of less than 1/4 inch.

8.6 Lateral Resistance

The following values may be utilized in resisting lateral loads imposed on the structure. Requirements of the California Building Code should be adhered to when the coefficient of friction and passive pressures are combined.

Coefficient of Friction – 0.40

Equivalent Passive Fluid Pressure = 250 lbs./cu.ft.

Maximum Passive Pressure = 2,500 lbs./cu.ft.

The passive pressure recommendations are valid only for approved compacted fill soils.

8.7 Retaining Wall Design Parameters

Active earth pressures against retaining wall will be equal to the pressures developed by the following fluid densities. These values are for **granular backfill material** placed behind the walls at various ground slopes above the walls.

Surface Slope of Retained Materials (Horizontal to Vertical)	Equivalent Fluid Density (lb./cu.ft.)
Level	30
5 to 1	35
4 to 1	38
3 to 1	40
2 to 1	45

Any applicable short-term construction surcharges and seismic forces should be added to the above lateral pressure values. All walls shall be waterproofed as needed and protected from hydrostatic pressure by a reliable permanent subdrain system. The subsurface drainage system shall consist of 4-inch diameter perforated PVC pipe encased with gravel. The granular backfill to be utilized immediately adjacent to the basement walls shall consist of an approved granular soils with a sand equivalency greater than 30. This backfill zone of free draining material shall consist of a wedge beginning a minimum of one horizontal foot from the base of the wall extending upward at an inclination of no less than 3/4 to 1 (horizontal to vertical).

The seismic-induced lateral soil pressure may be computed using a triangular pressure distribution with the maximum value at the top of the wall. The maximum lateral pressure of (20pcf) H, where H is the height of the retained soils above the wall footing should be utilized in final design of retaining walls. Sliding resistance values and passive fluid pressures given in our referenced report may be increased by 1/3 during short-term wind and seismic loading conditions.

8.8 Slab Design

All concrete slabs-on-grade shall be at least four inches reinforced with No. 3 bars at sixteen inch spacing in each direction and positioned in the center of the slab and placed on approved subgrade soils. These slabs shall be placed on approved subgrade soils moisture conditioned to above optimum moisture content to a depth of twelve inches.

A vapor retarder (10-mil minimum thickness) should be utilized in areas which would be sensitive to the infiltration of moisture. This retarder shall meet requirements of ASTM E 96, *Water Vapor Transmission of Materials* and ASTM E 1745, *Standard Specification for Water Vapor Retarders used in Contact with Soil or Granular Fill Under Concrete Slabs.* The vapor retarder shall be installed in accordance with procedures stated in ASTM E 1643, *Standard practice for Installation of Water Vapor Retarders used in Contact with Earth or Granular Fill Under Concrete Slabs.*

The moisture retarder may be placed directly upon approved subgrade soils, although one to two inches of sand beneath the membrane is desirable. The subgrade upon which the retarder is placed shall be smooth and free of rocks, gravel or other protrusions which may damage the retarder. Use of sand above the retarder is under the purview of the structural engineer; if sand is used over the retarder, it should be placed in a dry condition.

8.9 **Pavement Section Design**

The table below provides a preliminary pavement design based upon an R-Value of 28 for the proposed pavement areas. Final pavement design may need to be based on R-Value testing of the subgrade soils near the conclusion of rough grading to assure that these soils are consistent with those assumed in this preliminary design.

Type of Traffic	Traffic Index	Asphaltic Concrete (in)	Base Material (in)
Automobile Parking Stalls	4.0	3.0	4.0
Light Vehicle Circulation Areas	5.5	3.5	7.0

All concrete slabs to be utilized for pavement shall be a minimum of six inches in thickness and placed on approved subgrade soils. Client should submit anticipated traffic loadings, when available, so that pavement sections may be reviewed to determine adequacy to support these loads.

Any approved base material shall consist of a Class II aggregate or equivalent and should be compacted to a minimum of 95% relative compaction. All pavement materials shall conform to the requirements set forth by the City of Menifee. The base material and asphaltic concrete should be tested prior to delivery to the site and during placement to determine conformance with the project specifications. A pavement engineer shall designate the specific asphalt mix design to meet the required project specifications.

All pavement areas shall have positive drainage toward an approved outlet from the site. Drain lines behind curbs and/or adjacent to landscape areas should be considered by client and the appropriate design engineers to prevent water from infiltrating beneath pavement. If such infiltration occurs, damage to pavement, curbs and flow lines, especially on sites with expansive soils, may occur during the life of the project.

8.10 **Utility Trench and Excavation Backfill**

Trenches from installation of utility lines and other excavations may be backfilled with on-site soils or approved imported soils compacted to a minimum of 90% relative compaction. All utility lines shall be properly bedded with clean sand having a sand equivalency rating of 30 (SE > 30) or more. This bedding material shall be thoroughly water jetted around the pipe structure prior to placement of compacted backfill soils.

8.11 **Corrosion Design Criteria**

Representative samples of the surficial soils, typical of the subgrade soils expected to be encountered within foundation excavations and underground utilities were tested for corrosion potential. The minimum resistivity value obtained for the samples tested is representative of an environment that may be corrosive to metals. The soil pH value was considered mildly acidic and may have a significant effect on soil corrosivity. Consideration should be given to corrosion protection systems for buried metal such as protective coatings, wrappings or the use of PVC where permitted by local building codes.

According to Table 4.3.1, ACI 318 Building Code and Commentary, these contents revealed negligible levels of sulfate exposure. Therefore, a Type II cement according to latest CBC specifications may be utilized for building foundations at this time. Additional sulfate tests shall be performed at the completion of site grading to assure that these soils are consistent with the recommendations stated in this design. Sulfate test results may be found on the attached Table IV.

8.12 **Expansive Soil**

Since expansive soils were encountered, special attention should be given to the project design and maintenance. The attached *Expansive Soil Guidelines* should be reviewed by the engineers, architects, owner, maintenance personnel and other interested parties and considered during the design of the project and future property maintenance.

9.0 Closure

The recommendations and conclusions contained in this report are based upon the soil conditions uncovered in our test excavations. No warranty of the soil condition between our excavations is implied. NorCal Engineering should be notified for possible further recommendations if unexpected to unfavorable conditions are encountered during construction phase. It is the responsibility of the owner to ensure that all information within this report is submitted to the Architect and appropriate Engineers for the project. This firm should have the opportunity to review the final plans to verify that all our recommendations are incorporated. This report and all conclusions are subject to the review of the controlling authorities for the project.

A preconstruction conference should be held between the developer, general contractor, grading contractor, city inspector, architect, and soil engineer to clarify any questions relating to the grading operations and subsequent construction. Our representative should be present during the grading operations and construction phase to certify that such recommendations are complied within the field.

This geotechnical investigation has been conducted in a manner consistent with the level of care and skill exercised by members of our profession currently practicing under similar conditions in the Southern California area. No other warranty, expressed or implied is made.

We appreciate this opportunity to be of service to you. If you have any further questions, please do not hesitate to contact the undersigned.

Respectfully submitted,
NORCAL ENGINEERING

Keith D. Tucker
Project Engineer
R.G.E. 841

Scott D. Spensiero
Project Manager

Andrew Stone
Project Geologist
C.E.G. 1648

REFERENCES

California Division of Mines and Geology, 1997, Guidelines for Evaluating and Mitigating Seismic Hazards in California: Special Publication 117.

California Building Standards Commission, California Building Code, 2013.

Geologic Map of the Romoland 7.5 Minute Quadrangle, Riverside County, California, by D.M. Morton, published by USGS as Open-File Report OF-90-701

Preliminary Digital Geologic Map of the Santa Ana 30' x 60' Quadrangle, Southern California, by D.M. Morton, published by the United States Geological Survey as Open-File Report 99-172

2010 Fault Activity Map of California, prepared as Geologic Data Map No. 6 by the California Geological Survey, C.W. Jennings and W.A. Bryant

Safety Element of the Riverside County General Plan, Riverside County Intergrated Project

Riverside County Land Information System

SPECIFICATIONS FOR PLACEMENT OF COMPACTED FILL

Excavation

Any existing low density soils and/or saturated soils shall be removed to competent natural soil under the inspection of the Soils Engineering Firm. After the exposed surface has been cleansed of debris and/or vegetation, it shall be scarified until it is uniform in consistency, brought to the proper moisture content and compacted to a minimum of 90% relative compaction (in accordance with ASTM: D-1557).

In any area where a transition between fill and native soil or between bedrock and soil are encountered, additional excavation beneath foundations and slabs will be necessary in order to provide uniform support and avoid differential settlement of the structure.

Material For Fill

The on-site soils or approved import soils may be utilized for the compacted fill provided they are free of any deleterious materials and shall not contain any rocks, brick, asphaltic concrete, concrete or other hard materials greater than eight inches in maximum dimensions. Any import soil must be approved by the Soils Engineering firm a minimum of 24 hours prior to importation of site.

Placement of Compacted Fill Soils

The approved fill soils shall be placed in layers not excess of six inches in thickness. Each lift shall be uniform in thickness and thoroughly blended. The fill soils shall be brought to within 2% of the optimum moisture content, unless otherwise specified by the Soils Engineering firm. Each lift shall be compacted to a minimum of 90% relative compaction (in accordance with ASTM: D-1557) and approved prior to the placement of the next layer of soil. Compaction tests shall be obtained at the discretion of the Soils Engineering firm but to a minimum of one test for every 500 cubic yards placed and/or for every 2 feet of compacted fill placed.

The minimum relative compaction shall be obtained in accordance with accepted methods in the construction industry. The final grade of the structural areas shall be in a dense and smooth condition prior to placement of slabs-on-grade or pavement areas. No fill soils shall be placed, spread or compacted during unfavorable weather conditions. When the grading is interrupted by heavy rains, compaction operations shall not be resumed until approved by the Soils Engineering firm.

Grading Observations

The controlling governmental agencies should be notified prior to commencement of any grading operations. This firm recommends that the grading operations be conducted under the observation of a Soils Engineering firm as deemed necessary. A 24 hour notice must be provided to this firm prior to the time of our initial inspection.

Observation shall include the clearing and grubbing operations to assure that all unsuitable materials have been properly removed; approve the exposed subgrade in areas to receive fill and in areas where excavation has resulted in the desired finished grade and designate areas of overexcavation; and perform field compaction tests to determine relative compaction achieved during fill placement. In addition, all foundation excavations shall be observed by the Soils Engineering firm to confirm that appropriate bearing materials are present at the design grades and recommend any modifications to construct footings.

Expansive Soil Guidelines

The following expansive soil guidelines are provided for your project. The intent of these guidelines is to inform you, the client, of the importance of proper design and maintenance of projects supported on expansive soils. ***You, as the owner or other interested party, should be warned that you have a duty to provide the information contained in the soil report including these guidelines to your design engineers, architects, landscapers and other design parties in order to enable them to provide a design that takes into consideration expansive soils.***

In addition, you should provide the soil report with these guidelines to any property manager, lessee, property purchaser or other interested party that will have or assume the responsibility of maintaining the development in the future.

Expansive soils are fine-grained silts and clays which are subject to swelling and contracting. The amount of this swelling and contracting is subject to the amount of fine-grained clay materials present in the soils and the amount of moisture either introduced or extracted from the soils. Expansive soils are divided into five categories ranging from "very low" to "very high". Expansion indices are assigned to each classification and are included in the laboratory testing section of this report. *If the expansion index of the soils on your site, as stated in this report, is 21 or higher, you have expansive soils.* The classifications of expansive soils are as follows:

Classification of Expansive Soil*

Expansion Index	Potential Expansion
0-20	Very Low
21-50	Low
51-90	Medium
91-130	High
Above 130	Very High

When expansive soils are compacted during site grading operations, care is taken to place the materials at or slightly above optimum moisture levels and perform proper compaction operations. Any subsequent excessive wetting and/or drying of expansive soils will cause the soil materials to expand and/or contract. These actions are likely to cause distress of foundations, structures, slabs-on-grade, sidewalks and pavement over the life of the structure. ***It is therefore imperative that even after construction of improvements, the moisture contents are maintained at relatively constant levels, allowing neither excessive wetting or drying of soils.***

Evidence of excessive wetting of expansive soils may be seen in concrete slabs, both interior and exterior. Slabs may lift at construction joints producing a trip hazard or may crack from the pressure of soil expansion. Wet clays in foundation areas may result in lifting of the structure causing difficulty in the opening and closing of doors and windows, as well as cracking in exterior and interior wall surfaces. In extreme wetting of soils to depth, settlement of the structure may eventually result. Excessive wetting of soils in landscape areas adjacent to concrete or asphaltic pavement areas may also result in expansion of soils beneath pavement and resultant distress to the pavement surface.

Excessive drying of expansive soils is initially evidenced by cracking in the surface of the soils due to contraction. Settlement of structures and on-grade slabs may also eventually result along with problems in the operation of doors and windows.

Projects located in areas of expansive clay soils will be subject to more movement and "hairline" cracking of walls and slabs than similar projects situated on non-expansive sandy soils. There are, however, measures that developers and property owners may take to reduce the amount of movement over the life the development. The following guidelines are provided to assist you in both design and maintenance of projects on expansive soils:

- Drainage away from structures and pavement is essential to prevent excessive wetting of expansive soils. Grades to the latest building code should be designed and maintained to allow flow of irrigation and rain water to approved drainage devices or to the street. Any "ponding" of water adjacent to buildings, slabs and pavement after rains is evidence of poor drainage; the installation of drainage devices or regrading of the area may be required to assure proper drainage. Installation of rain gutters is also recommended to control the introduction of moisture next to buildings. Gutters should discharge into a drainage device or onto pavement which drains to roadways.

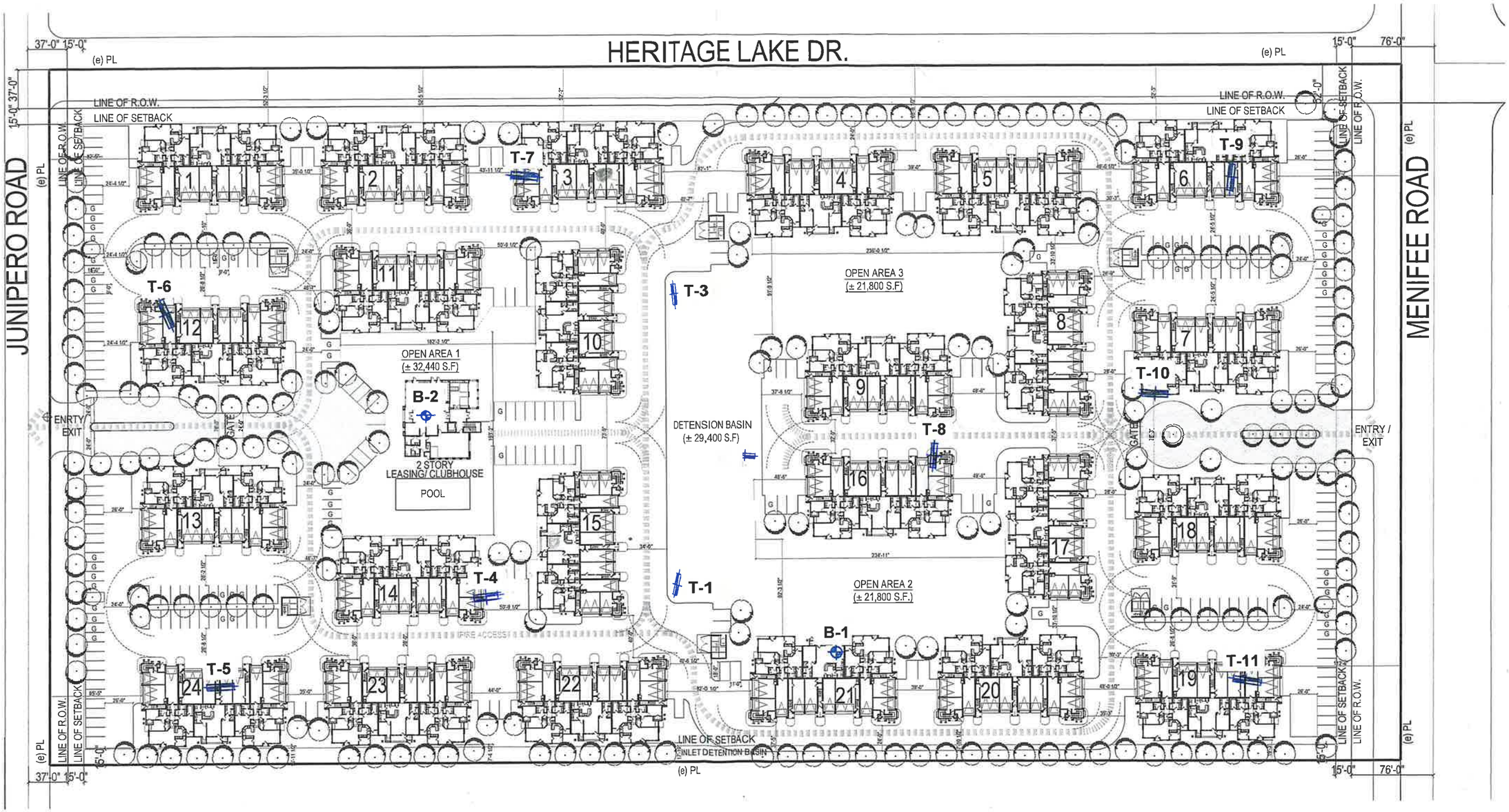
- Irrigation should be strictly controlled around building foundations, slabs and pavement and may need to be adjusted depending upon season. This control is essential to maintain a relatively uniform moisture content in the expansive soils and to prevent swelling and contracting. Over-watering adjacent to improvements may result in damage to those improvements. NorCal Engineering makes no specific recommendations regarding landscape irrigation schedules.

- Planting schemes for landscaping around structures and pavement should be analyzed carefully. Plants (including sod) requiring high amounts of water may result in excessive wetting of soils. Trees and large shrubs may actually extract moisture from the expansive soils, thus causing contraction of the fine-grained soils.

- Thickened edges on exterior slabs will assist in keeping excessive moisture from entering directly beneath the concrete. A six-inch thick or greater deepened edge on slabs may be considered. Underlying interior and exterior slabs with 6 to 12 inches or more of non-expansive soils and providing presaturation of the underlying clayey soils as recommended in the soil report will improve the overall performance of on-grade slabs.

- Increase the amount of steel reinforcing in concrete slabs, foundations and other structures to resist the forces of expansive soils. The precise amount of reinforcing should be determined by the appropriate design engineers and/or architects.

- Recommendations of the soil report should always be followed in the development of the project. Any recommendations regarding presaturation of the upper subgrade soils in slab areas should be performed in the field and verified by the Soil Engineer.



N

0' 50' 100' 200'

1 INCH = 100 FEET

NorCal Engineering
SOILS AND GEOTECHNICAL CONSULTANTS

PROJECT 17802-14	DATE DECEMBER 2014

SITE PLAN

List of Appendices
(in order of appearance)

Appendix A - Log of Excavations

- Log of Borings B-1 and B-2
- Log of Trenches T-1 to T-11

Appendix B - Laboratory Tests

- Table I - Maximum Dry Density
- Table II – Expansion
- Table III – Atterberg Limits
- Table IV – Corrosion
- R-Value

- Plates A to C - Direct Shear
- Plates D to G - Consolidation

Appendix A

MAJOR DIVISION			GRAPHIC SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL. SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	SAND AND SANDY SOILS	CLEAN SAND (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVEL-LY SANDS, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	SANDS WITH FINE (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND-SILT MIXTURES
				SC	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

UNIFIED SOIL CLASSIFICATION SYSTEM

KEY:

- ■ Indicates 2.5-inch Inside Diameter. Ring Sample.
- ⊠ Indicates 2-inch OD Split Spoon Sample (SPT).
- ⧅ Indicates Shelby Tube Sample.
- ◫ Indicates No Recovery.
- ◧ Indicates SPT with 140# Hammer 30 in. Drop.
- ⊠ Indicates Bulk Sample.
- ◩ Indicates Small Bag Sample.
- ◨ Indicates Non-Standard
- ⧓ Indicates Core Run.

COMPONENT PROPORTIONS

DESCRIPTIVE TERMS	RANGE OF PROPORTION
Trace	1 - 5%
Few	5 - 10%
Little	10 - 20%
Some	20 - 35%
And	35 - 50%

COMPONENT DEFINITIONS

COMPONENT	SIZE RANGE
Boulders	Larger than 12 in
Cobbles	3 in to 12 in
Gravel	3 in to No 4 (4.5mm)
Coarse gravel	3 in to 3/4 in
Fine gravel	3/4 in to No 4 (4.5mm)
Sand	No. 4 (4.5mm) to No. 200 (0.074mm)
Coarse sand	No. 4 (4.5 mm) to No. 10 (2.0 mm)
Medium sand	No. 10 (2.0 mm) to No. 40 (0.42 mm)
Fine sand	No. 40 (0.42 mm) to No. 200 (0.074 mm)
Silt and Clay	Smaller than No. 200 (0.074 mm)

MOISTURE CONTENT

DRY	Absence of moisture, dusty, dry to the touch.
DAMP	Some perceptible moisture; below optimum
MOIST	No visible water; near optimum moisture content
WET	Visible free water, usually soil is below water table.

RELATIVE DENSITY OR CONSISTENCY VERSUS SPT N -VALUE

COHESIONLESS SOILS		COHESIVE SOILS		
Density	N (blows/ft)	Consistency	N (blows/ft)	Approximate Undrained Shear Strength (psf)
Very Loose	0 to 4	Very Soft	0 to 2	< 250
Loose	4 to 10	Soft	2 to 4	250 - 500
Medium Dense	10 to 30	Medium Stiff	4 to 8	500 - 1000
Dense	30 to 50	Stiff	8 to 15	1000 - 2000
Very Dense	over 50	Very Stiff	15 to 30	2000 - 4000
		Hard	over 30	> 4000

Christiansen & Company
17802-14

Log of Boring B-1

Boring Location: Menifee	
Date of Drilling: 11/21/14	Groundwater Depth: 36'
Drilling Method: Simco 2800HS	
Hammer Weight: 140 lbs	Drop: 30"
Surface Elevation: Not Measured	

Depth (feet)	Lith-ology	Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: % Passing 200 Sieve
0		FILL Sandy SILT Brown, soft, dry					
		NATURAL Sandy SILT Brown, stiff to very stiff, damp					
5			⊠	15/26/33	14.0		47
		Clayey (fine to medium grained) SAND Red-brown, dense, moist					
10		Silty (fine to medium grained) SAND Light brown to grey-brown, very dense, moist; slightly clayey with gravel	⊠	15/38/35	7.8		22
15			⊠	13/21/25	15.0		32
20			⊠	28/32/35	4.6		10
25			⊠	19/50-5"	11.6		32
30			⊠	27/34/38	11.7		19
		Clayey SILT Grey-brown, very stiff, very moist					
35							

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Christiansen & Company 17802-14	Log of Boring B-1
Boring Location: Menifee	
Date of Drilling: 11/21/14	Groundwater Depth: 36'
Drilling Method: Simco 2800HS	
Hammer Weight: 140 lbs	Drop: 30"
Surface Elevation: Not Measured	

Depth (feet)	Lith-ology	Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: % Passing 200 Sieve
35		Clayey SILT Grey-brown, very stiff, very moist		18/22/24	25.8		73
40		Silty (fine to coarse grained) SAND Brown, very dense, moist; slightly clayey with gravel Groundwater encountered 36' bgs		25/32/30	19.1		32
45				13/18/21	16.8		17
50		Boring completed at depth of 51'		35/50-5"	19.6		20
55							
60							
65							
70							

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Christiansen & Company
17802-14

Log of Boring B-2

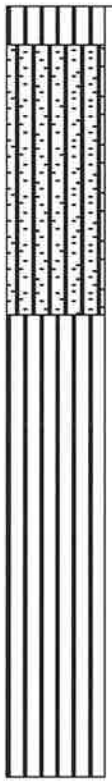
Boring Location: Menifee

Date of Drilling: 11/21/14 | **Groundwater Depth:** None Encountered

Drilling Method: Simco 2800HS

Hammer Weight: 140 lbs | **Drop:** 30"

Surface Elevation: Not Measured



Depth (feet)	Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: % Passing 200 Sieve
0	FILL Silty (fine grained) SAND Brown, loose, dry					
	NATURAL Sandy SILT Brown, stiff, moist	■		12.5	104.7	
10	Sandy SILT Brown, stiff to very stiff, moist	■		14.4	105.3	
15		■		15.6	107.4	
20	Boring completed at depth of 20'	■		13.7	105.5	
25						
30						
35						

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Christiansen & Company 17802-14	Log of Trench T-1

Boring Location: Menifee	
Date of Drilling: 11/22/14	Groundwater Depth: None Encountered
Drilling Method: Backhoe	
Hammer Weight:	Drop:
Surface Elevation: Not Measured	

Depth (feet)	Lith-ology	Material Description	Samples		Laboratory		
			Type	Blow Counts	Moisture	Dry Density	% Passing 200 Sieve
0		FILL Sandy SILT Brown, soft, damp					
		NATURAL Sandy SILT Brown, stiff, damp					
5		Silty (fine to coarse grained) SAND Brown, very dense, damp; with occasional gravel and slightly clay					
		Sandy SILT Brown, very stiff, moist; slight clay content					
10		Trench completed at depth of 7.5'					
15							
20							
25							
30							
35							

GWT not encountered

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Christiansen & Company 17802-14	Log of Trench T-2
Boring Location: Menifee	
Date of Drilling: 11/22/14	Groundwater Depth: None Encountered
Drilling Method: Backhoe	
Hammer Weight:	Drop:
Surface Elevation: Not Measured	

Depth (feet)	Lith-ology	Material Description	Samples		Laboratory		
			Type	Blow Counts	Moisture	Dry Density	% Passing 200 Sieve
0		FILL Sandy SILT Brown, soft, damp NATURAL Sandy SILT Brown, stiff, damp; slightly clay					
5		GWT not encountered Trench completed at depth of 5'					
10							
15							
20							
25							
30							
35							

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Christiansen & Company 17802-14	Log of Trench T-3
Boring Location: Menifee	
Date of Drilling: 11/22/14	Groundwater Depth: None Encountered
Drilling Method: Backhoe	
Hammer Weight:	Drop:
Surface Elevation: Not Measured	

Depth (feet)	Lith-ology	Material Description	Samples		Laboratory		
			Type	Blow Counts	Moisture	Dry Density	% Passing 200 Sieve
0		FILL Sandy SILT Brown, soft, damp NATURAL Sandy SILT Brown, stiff to very stiff, damp; with some clay					
5		GWT not encountered					
		Trench completed at depth of 7.5'					
10							
15							
20							
25							
30							
35							

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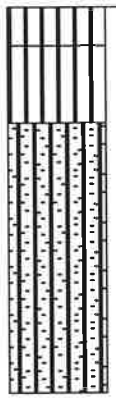
Christiansen & Company 17802-14	Log of Trench T-4
Boring Location: Menifee	
Date of Drilling: 11/22/14	Groundwater Depth: None Encountered
Drilling Method: Backhoe	
Hammer Weight:	Drop:
Surface Elevation: Not Measured	

Depth (feet)	Lith-ology	Material Description	Samples		Laboratory		
			Type	Blow Counts	Moisture	Dry Density	% Passing 200 Sieve
0		FILL Sandy SILT Brown, soft, dry	■		3.2	106.6	
		NATURAL Sandy SILT Brown, stiff to very stiff, moist	▽				
5		Silty (fine to coarse grained) SAND Brown, dense to very dense, damp; with occasional gravel and slightly clayey	■		6.9	110.3	
10		Trench completed at depth of 10'	■		4.2	115.1	
15							
20							
25							
30							
35							

GWT not encountered

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Christiansen & Company 17802-14	Log of Trench T-5
Boring Location: Menifee	
Date of Drilling: 11/22/14	Groundwater Depth: None Encountered
Drilling Method: Backhoe	
Hammer Weight:	Drop:
Surface Elevation: Not Measured	



Depth (feet)	Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: % Passing 200 Sieve
0	FILL Sandy SILT Brown, soft, dry					
	NATURAL Sandy SILT Brown, stiff, moist					
5	Silty (fine to coarse grained) SAND Brown, dense to very dense, damp; with occasional gravel and slightly clay			5.9	108.9	
10	Trench completed at depth of 10'			5.1	113.7	
15						
20						
25						
30						
35						

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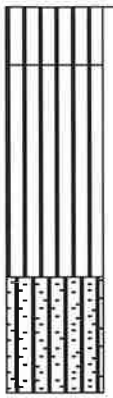
Christiansen & Company 17802-14	Log of Trench T-6
Boring Location: Menifee	
Date of Drilling: 11/22/14	Groundwater Depth: None Encountered
Drilling Method: Backhoe	
Hammer Weight:	Drop:
Surface Elevation: Not Measured	

Depth (feet)	Lith-ology	Material Description	Samples		Laboratory		
			Type	Blow Counts	Moisture	Dry Density	% Passing 200 Sieve
0		FILL Sandy SILT Brown, soft, dry					
		NATURAL Sandy SILT Brown, stiff to very stiff, moist; with trace of clay	■		11.4	115.2	
5		Silty (fine to coarse grained) SAND Brown, very dense, moist	■		6.7	117.9	
		Refusal at depth of 8' bgs					
10							
15							
20							
25							
30							
35							

GWT not encountered

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECT\17802-14 SI.log Date: 12/9/2014

Christiansen & Company 17802-14	Log of Trench T-7
Boring Location: Menifee	
Date of Drilling: 11/22/14	Groundwater Depth: None Encountered
Drilling Method: Backhoe	
Hammer Weight:	Drop:
Surface Elevation: Not Measured	



Depth (feet)	Lith-ology	Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: % Passing 200 Sieve
0		FILL Sandy SILT Brown, soft, dry	■		13.9	107.6	
		NATURAL Sandy SILT Brown, stiff to very stiff, moist	■		14.7	110.3	
5		Silty (fine to coarse grained) SAND Brown, very dense, moist					
10		Trench completed at depth of 10'	■		7.8	116.3	
15							
20							
25							
30							
35							

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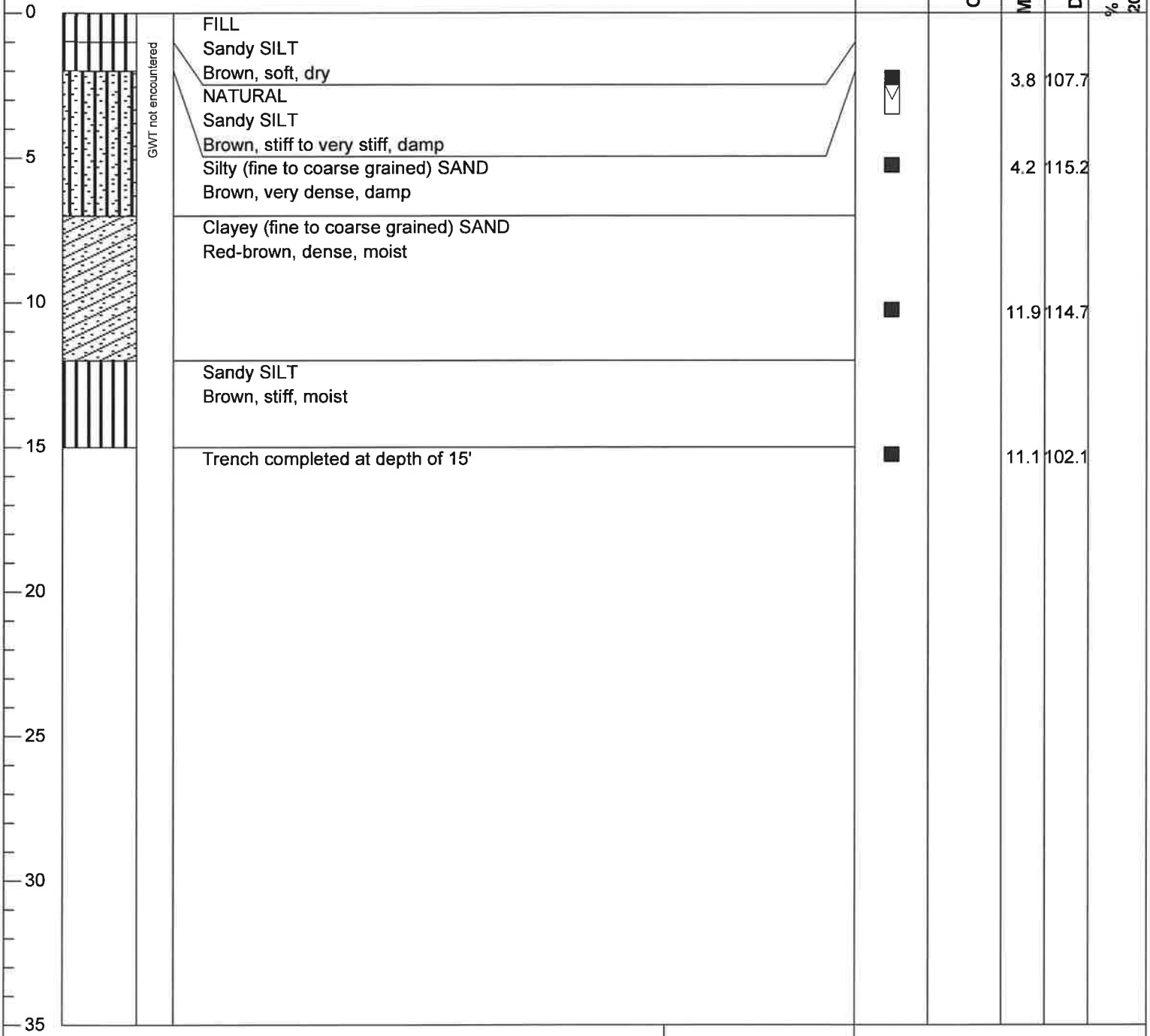
Christiansen & Company 17802-14	Log of Trench T-8
Boring Location: Menifee	
Date of Drilling: 11/22/14	Groundwater Depth: None Encountered
Drilling Method: Backhoe	
Hammer Weight:	Drop:
Surface Elevation: Not Measured	

Depth (feet)	Lith-ology	Material Description	Samples		Laboratory		
			Type	Blow Counts	Moisture	Dry Density	% Passing 200 Sieve
0		FILL Sandy SILT Brown, soft, dry					
		NATURAL Sandy SILT Brown, stiff to very stiff, moist					
5		Silty (fine to coarse grained) SAND Brown, very dense, moist					
		Trench completed at depth of 7'					
10							
15							
20							
25							
30							
35							

GWT not encountered

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECT\17802-14 SI.log Date: 12/9/2014

Christiansen & Company 17802-14	Log of Trench T-9
Boring Location: Menifee	
Date of Drilling: 11/22/14	Groundwater Depth: None Encountered
Drilling Method: Backhoe	
Hammer Weight:	Drop:
Surface Elevation: Not Measured	



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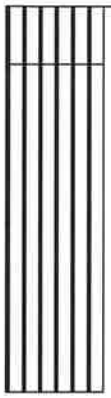
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Christiansen & Company 17802-14	Log of Trench T-10
Boring Location: Menifee	
Date of Drilling: 11/22/14	Groundwater Depth: None Encountered
Drilling Method: Backhoe	
Hammer Weight:	Drop:
Surface Elevation: Not Measured	

Depth (feet)	Lith-ology	Material Description	Samples		Laboratory		
			Type	Blow Counts	Moisture	Dry Density	% Passing 200 Sieve
0		FILL Sandy SILT Brown, soft, dry	■		3.7	105.8	
		NATURAL Sandy SILT Brown, stiff to very stiff, moist; with trace of clay					
5		Silty (fine to coarse grained) SAND Brown, very dense, moist	■		2.6	115.3	
		GWT not encountered					
10		Trench completed at depth of 10'					
15							
20							
25							
30							
35							

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Christiansen & Company 17802-14	Log of Trench T-11
Boring Location: Menifee	
Date of Drilling: 11/22/14	Groundwater Depth: None Encountered
Drilling Method: Backhoe	
Hammer Weight:	Drop:
Surface Elevation: Not Measured	



Depth (feet)	Lith-ology	Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: % Passing 200 Sieve
0		FILL Sandy SILT Brown, soft, dry					
		NATURAL Sandy SILT Brown, stiff to very stiff, moist; with trace of clay	■		11.9	113.7	
10		Trench completed at depth of 10'	■		11.3	115.2	
15							
20							
25							
30							
35							

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECT\17802-14 SI.log Date: 12/9/2014

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Appendix B

TABLE I
MAXIMUM DENSITY TESTS

Sample	Classification	Optimum Moisture	Maximum Dry Density (lbs./cu.ft.)
T-4 @ 2'	Sandy SILT	12.5	115.0
T-5 @ 3'	Silty SAND	9.5	128.0
T-9 @ 2'	Sandy SILT	11.5	125.0

TABLE II
EXPANSION INDEX TESTS

Soil Type	Classification	Expansion Index
T-4 @ 2'	Sandy SILT	17
T-9 @ 2'	Sandy SILT	10

TABLE III
ATTERBERG LIMITS

Sample	Liquid Limit	Plastic Limit	Plasticity Index
B-1 @ 5'	24	17	7
B-1 @ 10'	26	18	8

TABLE IV
CORROSION TESTS

Sample	pH	Electrical Resistivity (ohm-cm)	Sulfate (%)	Chloride (ppm)
T-4 @ 2'	7.4	1,008	0.020	289
T-5 @ 3'	7.3	1,355	0.011	247
T-9 @ 2'	7.4	1,427	0.009	258

ND denotes not detected
% by weight
ppm – mg/kg

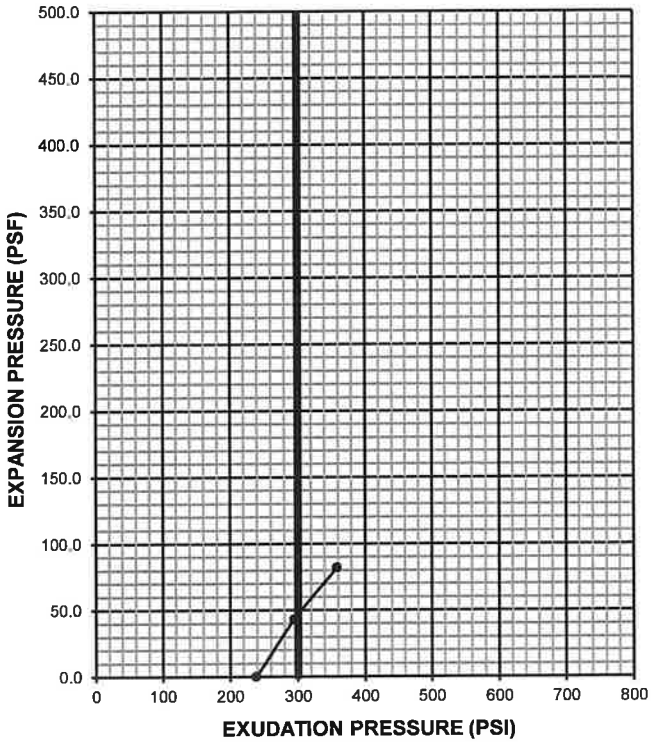
GMU GEOTECHNICAL, INC.

R-VALUE TEST RESULTS

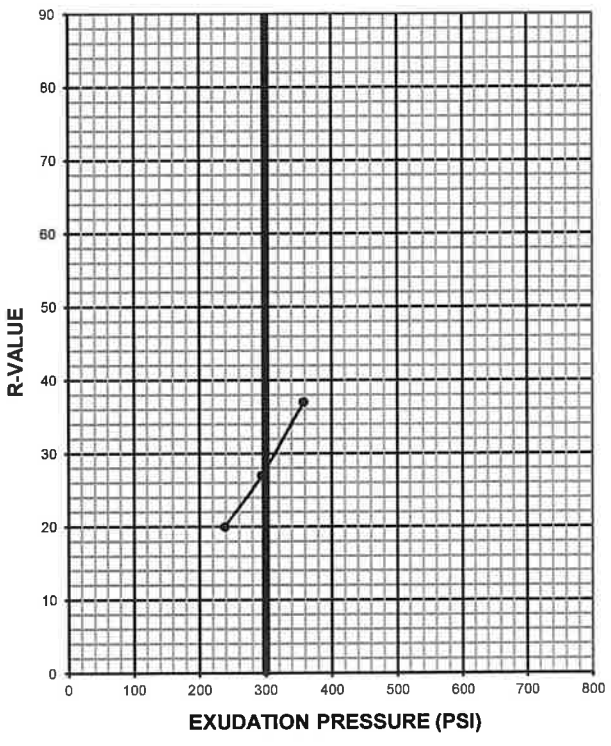
PROJECT NAME:	Christiansen and Company	PROJECT NUMBER:	L-141104
SAMPLE LOCATION:	SWC of Menifee Rd and Heritage Lakes Drive, Menifee	SAMPLE NUMBER:	B-1 @ 1.0'
SAMPLE DESCRIPTION:	Silty Sand with some Clay (SM)	TECHNICIAN:	EE/MF
		DATE TESTED	12/3/2014

TEST SPECIMEN	a	b	c
MOISTURE AT COMPACTION %	13.3	12.7	12.2
WEIGHT OF SAMPLE, grams	1103	1112	1114
HEIGHT OF SAMPLE, Inches	2.48	2.50	2.49
DRY DENSITY, pcf	118.9	119.6	120.8
COMPACTOR AIR PRESSURE, psi	180	200	250
EXUDATION PRESSURE, psi	238	294	358
EXPANSION, Inches x 10exp-4	0	10	19
STABILITY Ph 2,000 lbs (160 psi)	110	97	78
TURNS DISPLACEMENT	4.51	4.36	4.50
R-VALUE UNCORRECTED	20	27	37
R-VALUE CORRECTED	20	27	37
EXPANSION PRESSURE (psf)	0.0	43.2	82.1

EXPANSION PRESSURE VS. EXUDATION PRESSURE

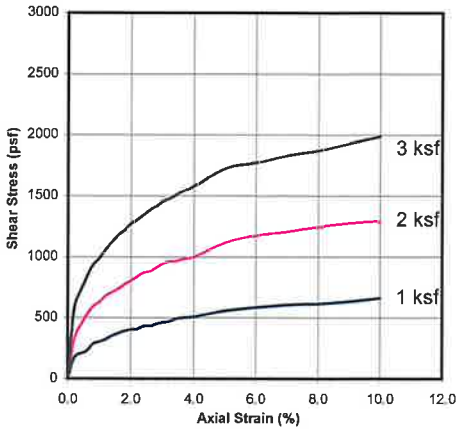


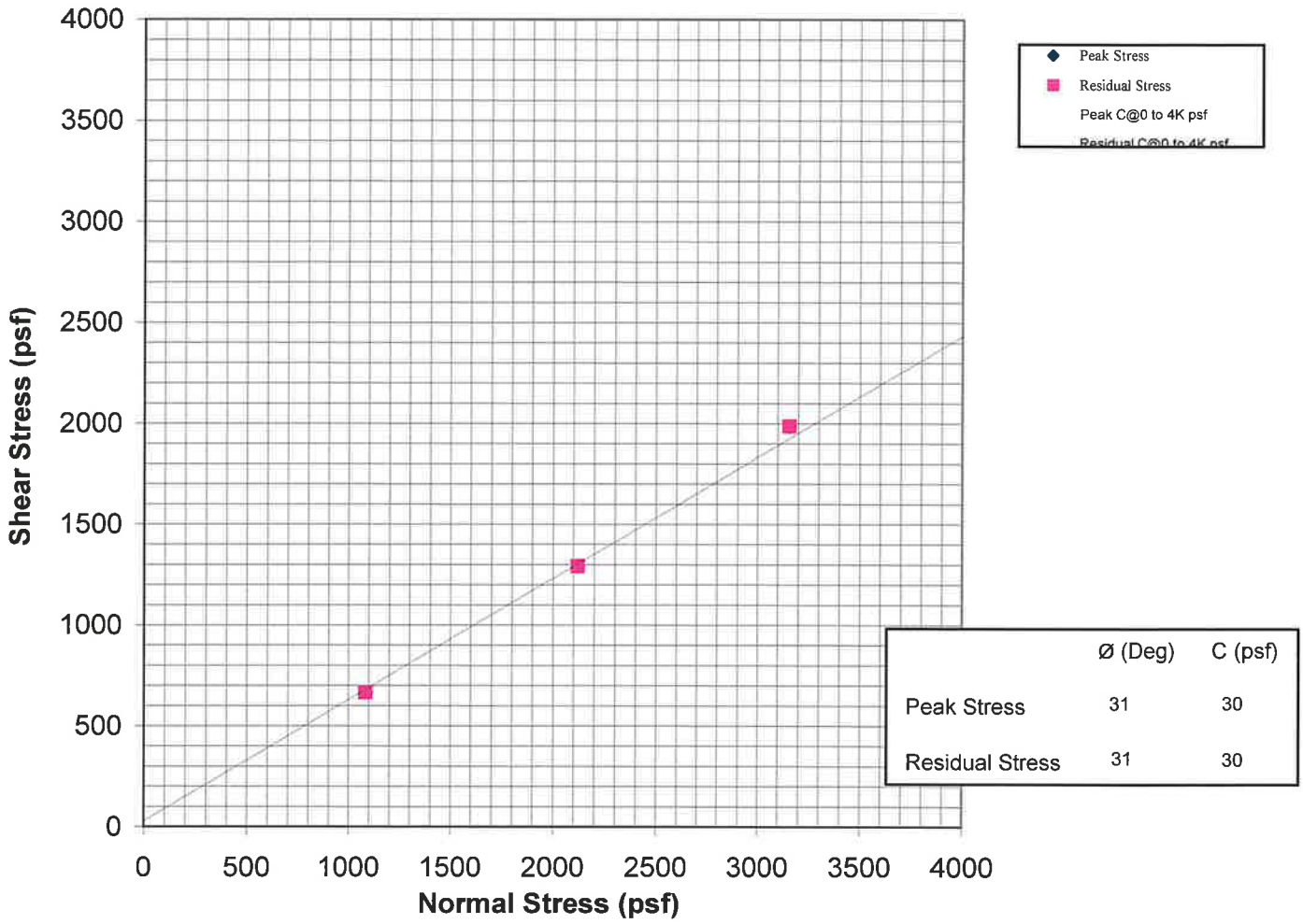
R-VALUE VS. EXUDATION PRESSURE



R-VALUE AT 300 PSI EXUDATION PRESSURE :	**28**
EXP. PRESSURE AT 300 PSI EXUDATION PRESSURE (PSF) :	**50**

Sample No.		T4@2'		
Sample Type:		Undisturbed/Saturated		
Soil Description:		Sandy Silt		
		1	2	3
Normal Stress	(psf)	1085	2120	3156
Peak Stress	(psf)	666	1293	1987
Displacement	(in)	0.250	0.250	0.250
Residual Stress	(psf)	666	1293	1987
Displacement	(in.)	0.250	0.250	0.250
In Situ Dry Density	(pcf)	106.6	106.6	106.6
In Situ Water Content	(%)	3.2	3.2	3.2
Saturated Water Content	(%)	21.3	21.3	21.3
Strain Rate	(in/min)	0.020	0.020	0.020





	Ø (Deg)	C (psf)
Peak Stress	31	30
Residual Stress	31	30

NorCal Engineering

SOILS AND GEOTECHNICAL CONSULTANTS

Christiansen & Company

PROJECT NUMBER: 17802-14 DATE: 12/9/2014

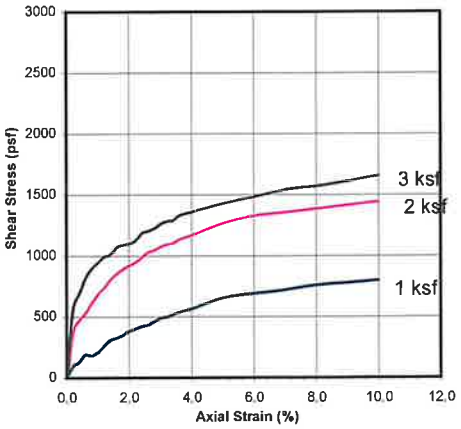
DIRECT SHEAR TEST

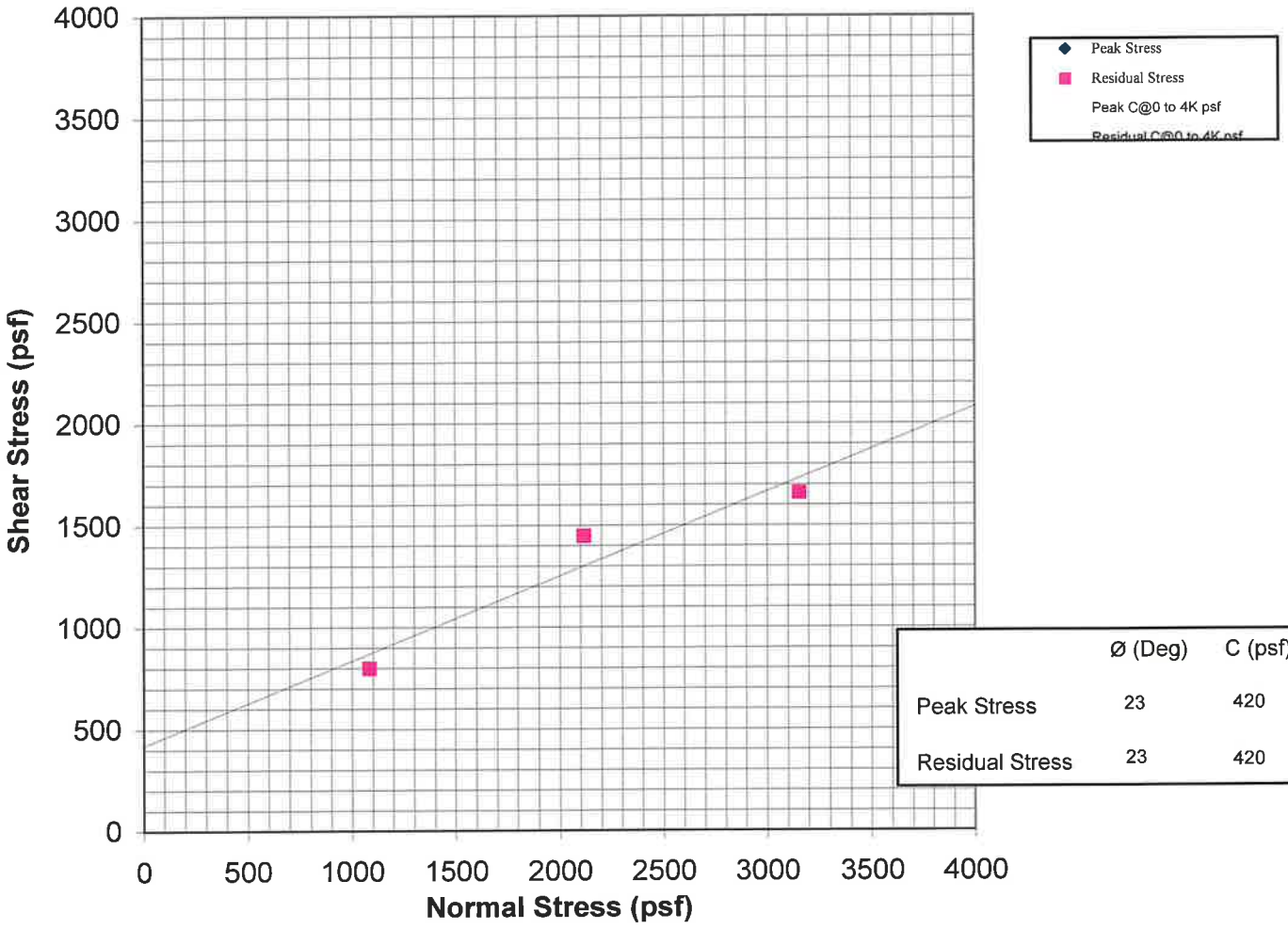
ASTM D3080

Plate A

Sample No.	T7@2'
Sample Type:	Undisturbed/Saturated
Soil Description:	Sandy to Clayey Silt

		1	2	3
Normal Stress	(psf)	1085	2120	3156
Peak Stress	(psf)	801	1447	1659
Displacement	(in.)	0.250	0.250	0.250
Residual Stress	(psf)	801	1447	1659
Displacement	(in.)	0.250	0.250	0.250
In Situ Dry Density	(pcf)	107.6	107.6	107.6
In Situ Water Content	(%)	13.9	13.9	13.9
Saturated Water Content	(%)	20.6	20.6	20.6
Strain Rate	(in/min)	0.020	0.020	0.020





	Ø (Deg)	C (psf)
Peak Stress	23	420
Residual Stress	23	420

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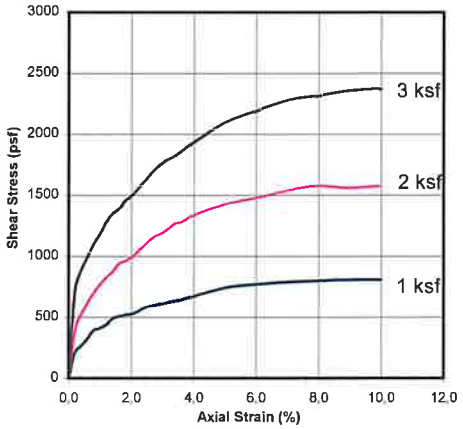
PROJECT NUMBER: 17802-14 DATE: 12/9/2014

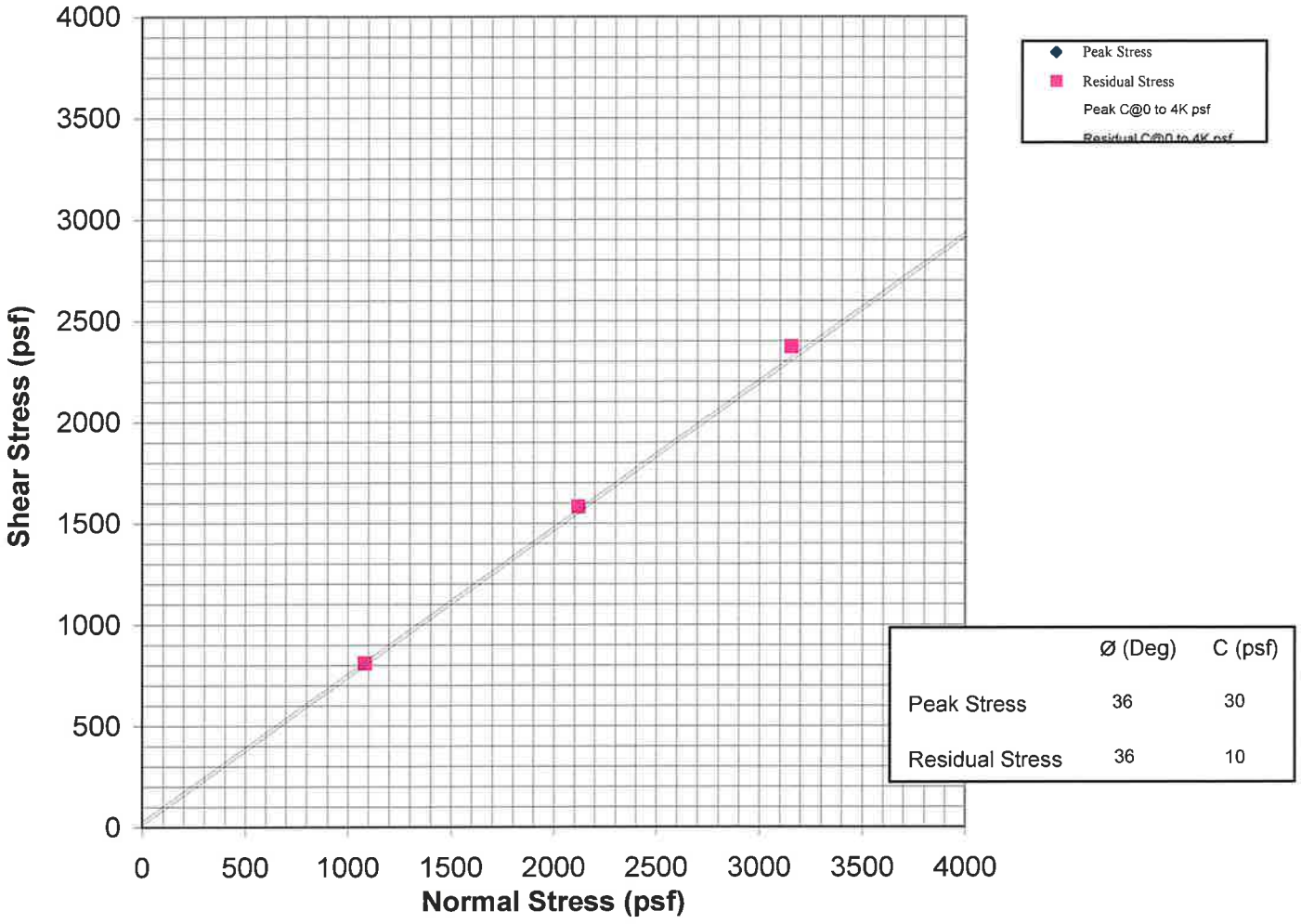
DIRECT SHEAR TEST

ASTM D3080

Plate B

Sample No.		T10@2'		
Sample Type:		Undisturbed/Saturated		
Soil Description:		Silty Sand w/ Some Clay		
		1	2	3
Normal Stress	(psf)	1085	2120	3156
Peak Stress	(psf)	810	1582	2373
Displacement	(in.)	0.225	0.200	0.250
Residual Stress	(psf)	810	1582	2373
Displacement	(in.)	0.250	0.250	0.250
In Situ Dry Density	(pcf)	105.8	105.8	105.8
In Situ Water Content	(%)	3.7	3.7	3.7
Saturated Water Content	(%)	28.0	28.0	28.0
Strain Rate	(in/min)	0.020	0.020	0.020





	Ø (Deg)	C (psf)
Peak Stress	36	30
Residual Stress	36	10

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Christiansen & Company

PROJECT NUMBER: 17802-14 DATE: 12/9/2014

DIRECT SHEAR TEST

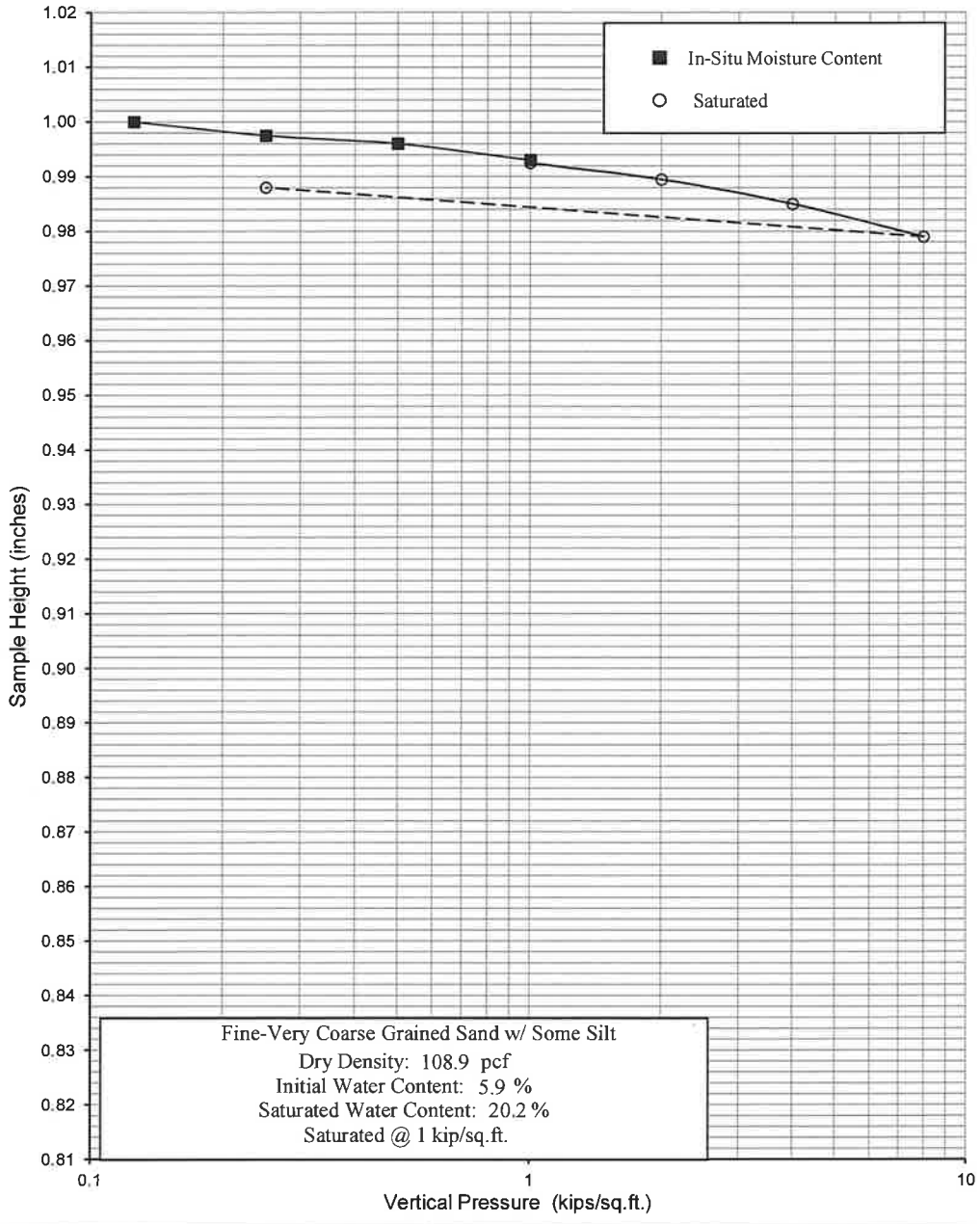
ASTM D3080

Plate C

Vertical Pressure (kips/sq.ft.)	Sample Height (inches)	Consolidation (percent)	
0.125	1.0000	0.0	
0.25	0.9975	0.2	
0.5	0.9960	0.4	
1	0.9930	0.7	
1	0.9925	0.8	Saturated
2	0.9895	1.1	
4	0.9850	1.5	
8	0.9790	2.1	
0.25	0.9880	1.2	

Sample No.	T5	Depth	5'	Date	12/9/2014

Date Tested: 12/4/2014
Sample: T5
Depth: 5'



NorCal Engineering

SOILS AND GEOTECHNICAL CONSULTANTS

Christiansen & Company

PROJECT NUMBER: 17802-14 DATE: 12/9/2014

CONSOLIDATION TEST

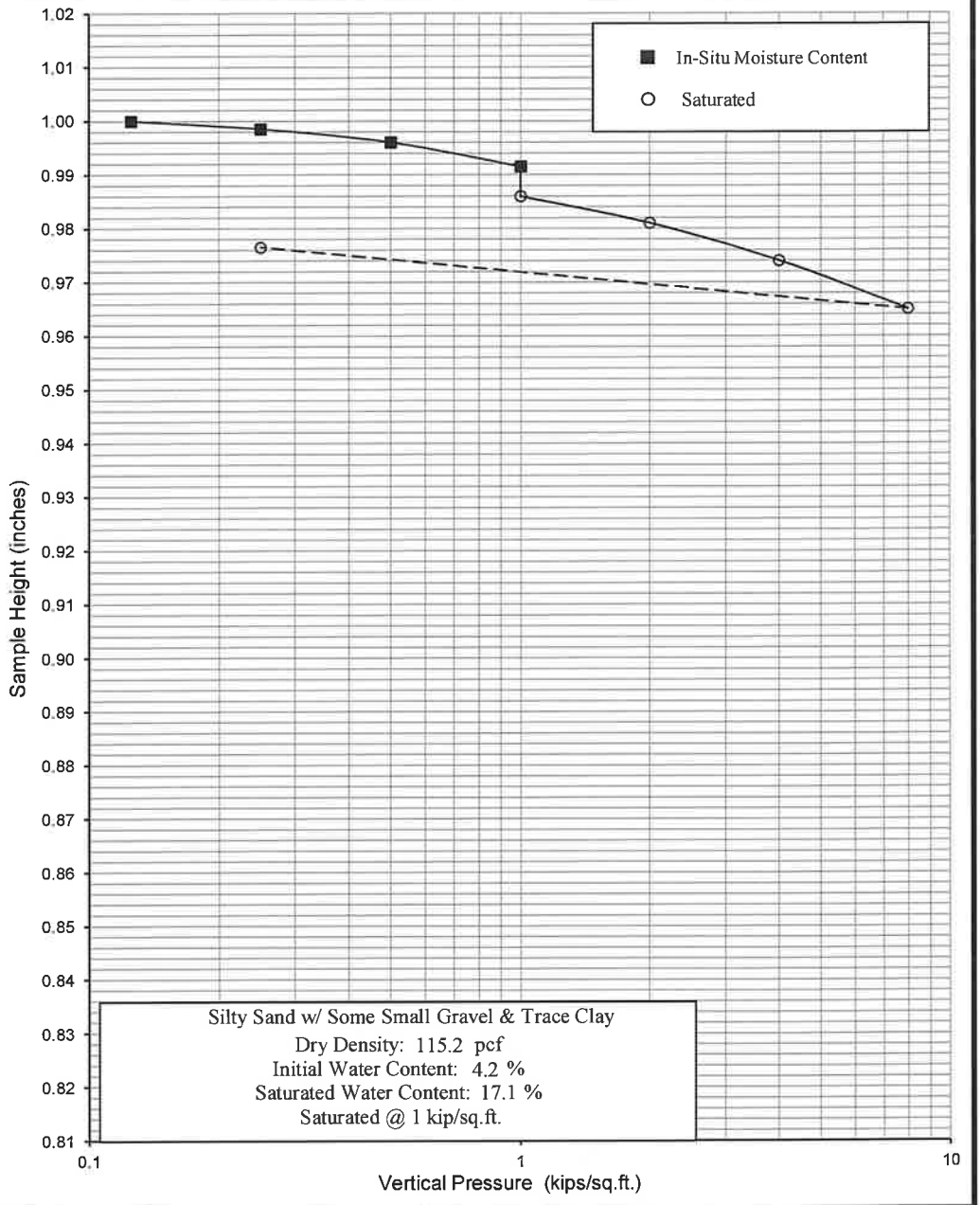
ASTM D2435

Plate D

Vertical Pressure (kips/sq.ft.)	Sample Height (inches)	Consolidation (percent)	
0.125	1.0000	0.0	
0.25	0.9985	0.2	
0.5	0.9960	0.4	
1	0.9915	0.8	
1	0.9860	1.4	Saturated
2	0.9810	1.9	
4	0.9740	2.6	
8	0.9650	3.5	
0.25	0.9765	2.4	

Sample No.	T9	Depth	5'	Date	12/9/2014

Date Tested: 12/4/2014
Sample: T9
Depth: 5'



NorCal Engineering
SOILS AND GEOTECHNICAL CONSULTANTS

Christiansen & Company

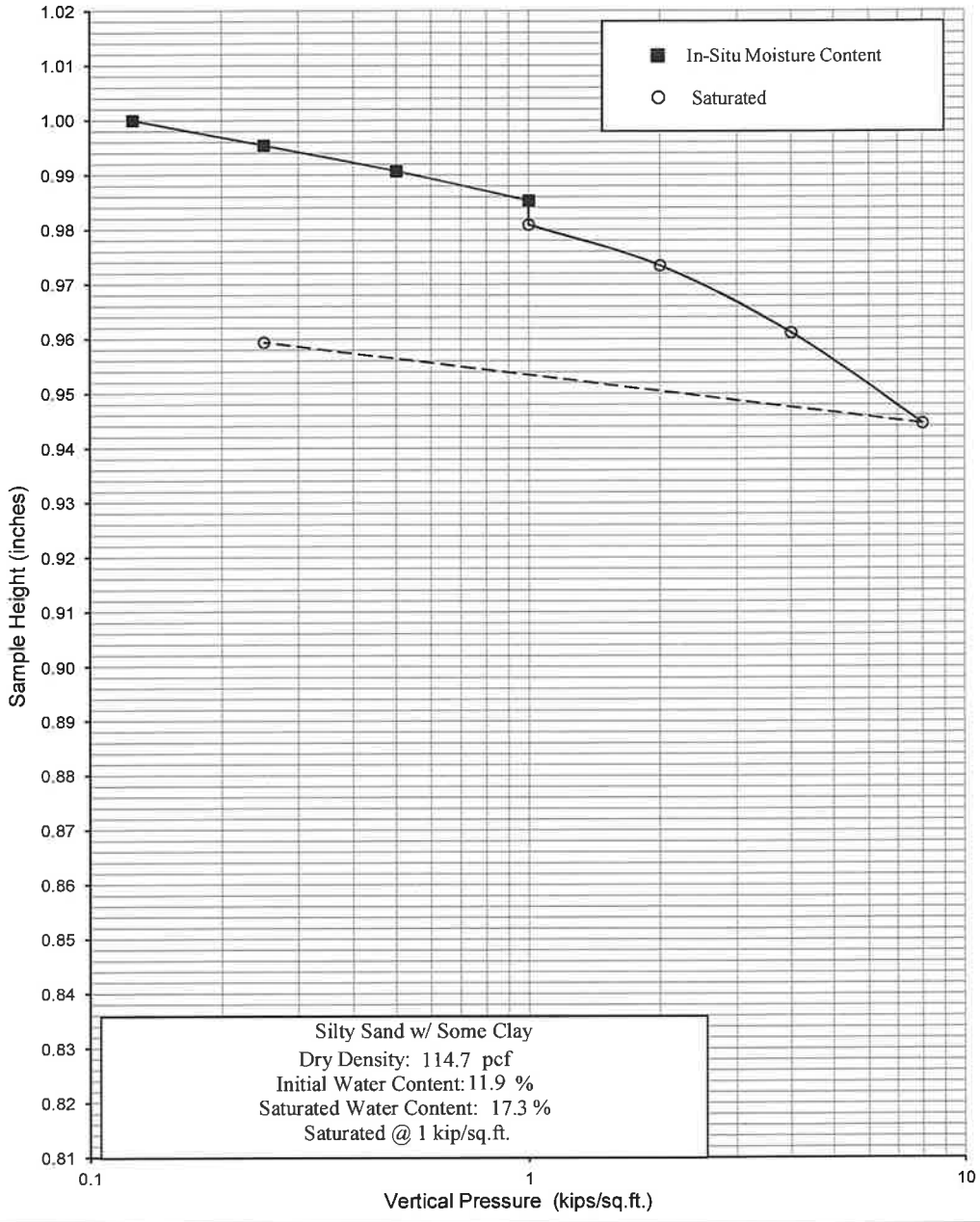
PROJECT NUMBER: 17802-14 DATE: 12/9/2014

CONSOLIDATION TEST
ASTM D2435
Plate E

Vertical Pressure (kips/sq.ft.)	Sample Height (inches)	Consolidation (percent)	
0.125	1.0000	0.0	
0.25	0.9954	0.5	
0.5	0.9907	0.9	
1	0.9853	1.5	
1	0.9809	1.9	Saturated
2	0.9734	2.7	
4	0.9611	3.9	
8	0.9445	5.6	
0.25	0.9594	4.1	

Date Tested: 12/4/2014
Sample: T9
Depth: 10'

Sample No.	T9	Depth	10'	Date	12/9/2014



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SOILS AND GEOTECHNICAL CONSULTANTS

Christiansen & Company

PROJECT NUMBER: 17802-14 DATE: 12/9/2014

CONSOLIDATION TEST

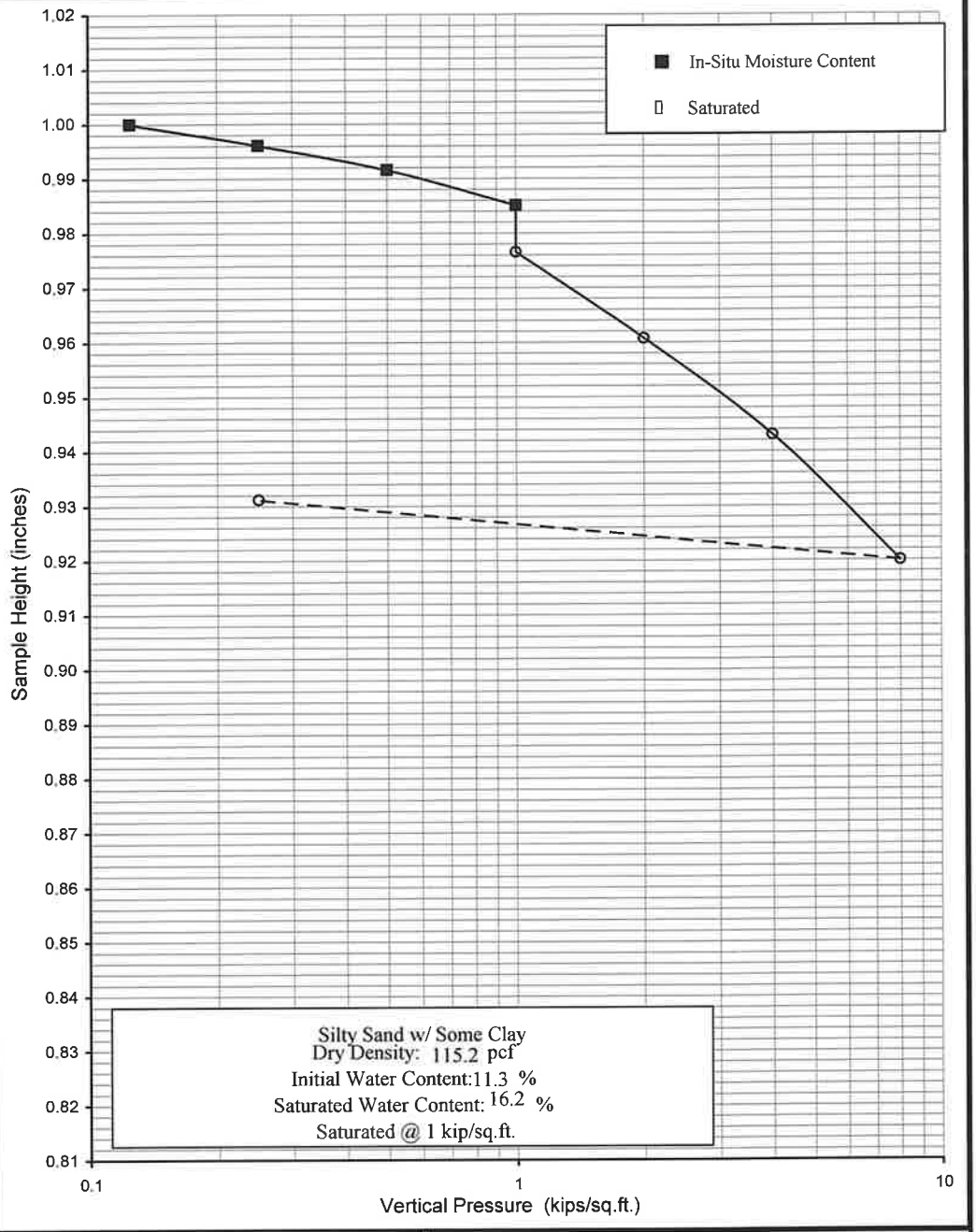
ASTM D2435

Plate F

Vertical Pressure (kips/sq.ft.)	Sample Height (inches)	Consolidation (percent)	
0.125	1.0000	0.0	
0.25	0.9961	0.4	
0.5	0.9916	0.8	
1	0.9851	1.5	
1	0.9765	2.4	Saturated
2	0.9607	3.9	
4	0.9430	5.7	
8	0.9200	8.0	
0.25	0.9312	6.9	

Date Tested:	**12/5/2014**
Sample:	**T11**
Depth:	**10'**

Sample No.	T11	Depth	10'	Date	12/9/2014



NorCal Engineering

SOILS AND GEOTECHNICAL CONSULTANTS

Christiansen & Company

PROJECT NUMBER: 17802-14 DATE: 12/9/2014

CONSOLIDATION TEST

ASTM D2435

Plate G

NorCal Engineering

Soils and Geotechnical Consultants
Los Alamitos, California 90720
(562)799-9469 Fax (562)799-9459

December 20, 2022 Project Number 17802-14

Tuffli Company, Inc.
2245 W. 190th Street
Torrance, Calfiornia 90504

Attn.: Mr. William Cunningham

RE: **Response to City Geotechnical Review Comments** - Proposed "The Village at Junipero" Residential Development - Located at the Southwest Corner of Menifee Road and Heritage Lake Drive, Menifee, County of Riverside, California

Dear Mr. Cunningham:
Submitted herewith is response to the attached City of Menifee Geotechnical Report Review Comments dated March 9, 2022 of our geotechnical report for the above referenced project. The following items are provided in the same order of the review sheet for clarity.

Response to Comment No. 1
Overall, the geotechnical conditions of the subject site are currently representative of the conditions described in the previous referenced report. It is our opinion that the planned construction will be geotechnically feasible provided that all of the recommendations presented in our referenced report are implemented and all conditions of latest 2019 California Building Code (CBC) are adhered. This firm shall have the opportunity to review building plans when they are made available to verify that all recommendations are incorporated and if additional information or revisions will be required.

Response to Comment No. 2
A Site Location Map (Figure 1) is attached.

Response to Comment No. 3
The potential for hydro-consolidation and the susceptibility for any ground settlements are considered low.

Response to Comment No. 4
The subject property is situated at the southwest corner of Menifee Road and Heritage Lake Drive, in the City of Menifee. The generally rectangular shaped parcel is elongated in an east to west direction and topography of the relatively level parcel descending gradually from south to north on the order of a few feet. The site is an undeveloped lot currently covered a low growth of vegetation consisting of natural grasses and weeds. Recently, the grading operations from the site next door consisted of exporting and forming a large stockpile of soil on the subject site. A portion of the project site was previously used as a staging area during construction for the new neighboring development.

Response to Comment No. 5
The site grading recommendations will remain the same as stated in our preliminary geotechnical report dated December 9, 2014.

Response to Comment No. 6
The seismic design parameters have been revised and are provided below and based upon the 2019 California Building Code (CBC) Standard ASCE/SEI 7-16. The data was obtained from the American Society of Civil Engineers (ASCE) website, https://asce7hazardtool.online/ and the ASCE 7 Hazards Report.

Seismic Design Acceleration Parameters

Latitude	33.725
Longitude	-117.155
Site Class	D
Risk Category	II
Mapped Spectral Response Acceleration	S_S = 1.411 S_1 = 0.525
Adjusted Maximum Acceleration	S_{MS} = 1.411
Design Spectral Response Acceleration Parameters	S_{DS} = 0.941
Peak Ground Acceleration	PGA_M = 0.55

Use of these values is dependent on requirements of Section 11-4.8 ASCE 7, exception 2 that requires the value of the seismic response coefficient C_s be determined by Equation 12.8.2 for values of $T \leq 1.5T_s$ and taken as equal to 1.5 times the value computed in accordance with either 12.8-3 for $T_L \geq T \geq 1.5T_s$ or Equation 12.8-4 for $T > T_L$. Computations and verification of these conditions is referred to the structural engineer.

We appreciate this opportunity to be of service to you. If you have any further questions, please do not hesitate to contact the undersigned.

Respectfully submitted,
NORCAL ENGINEERING

REGISTERED PROFESSIONAL ENGINEER
KEITH D. TUCKER
No. 841
Exp. 12/31/2022
GEOTECHNICAL
STATE OF CALIFORNIA

Keith D. Tucker
Project Engineer
R.G.E. 841

Scott D. Spensiero
Project Manager

MENIFEE

CITY OF MENIFEE

MEMORANDUM

PUBLIC WORKS / ENGINEERING DEPARTMENT

DATE: March 9, 2022

TO: Russell Brown, Senior Planner, Community Development Department

FROM: Chet Robinson, Senior Engineer, Engineering Department

SUBJECT: RPT22-022 – Geotechincal Report Review Comments, PC1
Villages at Junipero

The comments noted herein are for review of the following:

- Geotechnical Engineering Investigation, The Villages at Junipero Development, SWC Menifee Road and Heritage Lakes Drive, prepared by NorCal Engineering, Project Number 17802-14, dated December 9, 2014.
- Response to County Geological Report Review Sheet, prepared by NorCal Engineering, Project Number 17802-14, dated May 5, 2015.
- Preliminary Grading Plan, Sheet PGP-1, prepared by Christiansen & Company, dated December 12, 2021 (for reference only).

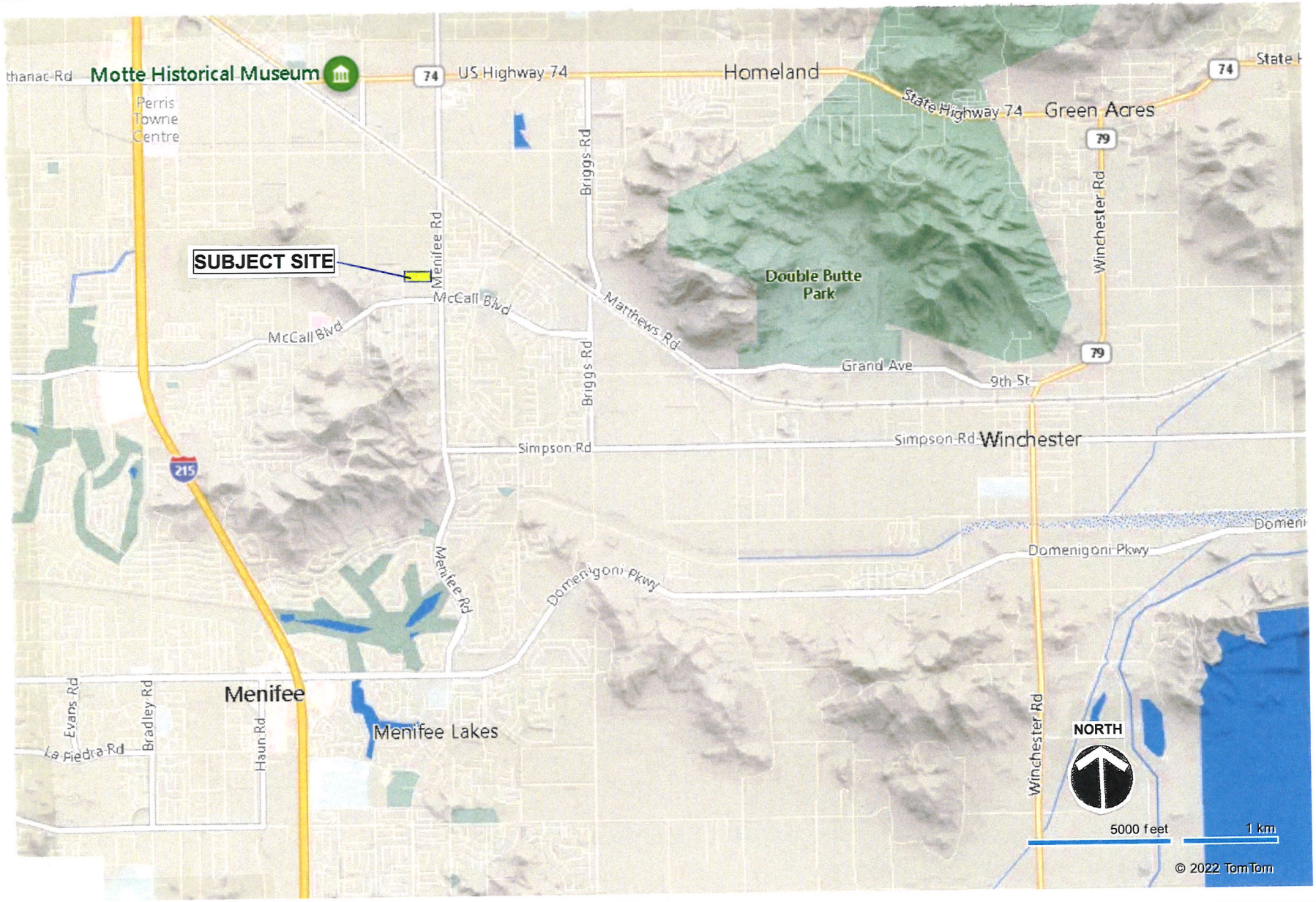
Our review was provided of the Geotechnical Engineering Investigation report for the proposed development. The following comments should be addressed by the consultant for conformance with the minimum criteria outlined in the County of Riverside Technical Guidelines for Review of Geotechnical and Geologic Reports.

Geotechnical Comments

1. The submitted report and response letter are from 2014 and 2015. Geotechnical reports greater than 3 years old must be updated to current standards and codes, or an addendum letter provided stating that the report is still applicable and providing updated recommendations as needed.
2. The report does not include a site location map showing the location of the site within the City of Menifee.
3. The report does not address hydrocollapse potential.
4. The site description is outdated as the site has been disturbed by recent construction activity and has been used to stockpile soil. Provide an updated description of site conditions and land use history.

5. Grading Recommendations: Provide updated grading recommendations if needed based on recent site activity.
6. CBC Seismic Design Parameters do not reflect requirements of the current California Building Code.

The applicant should update their report or submit an addendum letter addressing each comment. Any questions can be directed to Chet Robinson at (951) 723-3879, or by email at crobinson@cityofmenifee.us



NorCal Engineering SOILS AND GEOTECHNICAL CONSULTANTS	
PROJECT: **17802-14**	DATE: **DECEMBER 2022**

SITE LOCATION MAP

FIGURE 1

NorCal Engineering

Soils and Geotechnical Consultants
10641 Humbolt Street Los Alamitos, CA 90720
(562) 799-9469 Fax (562) 799-9459

December 3, 2014 Project Number 17802-14

Christiansen & Company
3649 Ninth Street
Riverside, California 92501

Attn.: Mr. Keith Christiansen

RE: **Soil Infiltration Study** - Proposed "The Village at Junipero Apartment Development" - Located at the Southwest Corner of Menifee Road and Heritage Lakes Drive, in the City of Menifee, California

Dear Mr. Christiansen:

Pursuant to your request, this firm has performed a Soils Infiltration Study for the above referenced project in accordance with your approval of proposal dated August 18, 2014. The purpose of this study is to evaluate the feasibility of an on-site drainage disposal system for the proposed residential development. The scope of work included the following: 1) site reconnaissance; 2) subsurface geotechnical exploration; 3) double ring infiltration testing; 4) engineering analysis of field and laboratory data; and 5) preparation of a report.

It is proposed to construct a multi-unit apartment complex as shown on the attached conceptual site plan. The project will consist of twenty-four (24) buildings including a new clubhouse and swimming pool on the 19.25-acre property. The two and/or three story buildings will be supported by a conventional slab-on-grade foundation system with perimeter-spread footings and isolated interior footings. It is assumed that the proposed grading for the development will include minor cut and fill procedures. The proposed on-site drainage disposal system will consist of a large detention/infiltration basin on the order of 5 to 8 feet in depth.

Site Description

The subject property is situated at the southwest corner of Menifee Road and Heritage Lakes Drive, in the City of Menifee. The generally rectangular shaped parcel is elongated in an east to west direction and topography of the relatively level parcel descending gradually from south to north on the order of a few feet. The site is an undeveloped lot currently covered with a low to moderate growth of vegetation consisting of natural grasses and weeds.

Field Exploration

The testing was conducted on November 22, 2014 and consisted of using the double ring infiltrometer at three (3) locations to determine the infiltration rate of the proposed drainage disposal system. The location of these tests is shown on the attached Site Plan. These test locations were excavated by a backhoe at a depth of 5 to 7½ feet below ground surface (bgs). No caving occurred to the depth of these test excavations and no groundwater was encountered.

Detailed description of the subsurface soils is shown on the attached test excavations logs in Appendix B. In general, the site was found to be underlain by a fill and native soil classified as a sandy silt which was noted to be stiff to very stiff and damp and a a brown, silty to clayey sand which were noted to be very dense and damp.

Infiltration Test Procedure and Results

The infiltration test consisted of the double ring infiltration test per ASTM Method D 3385. "The double ring infiltrometer method consists of driving two open cylinders, one inside the other, into the ground, partially filling the ring with water or other liquid, and then maintaining the liquid at a constant level. The volume of liquid added to the inner ring, to maintain the liquid level constant is the measure of the volume of liquid that infiltrates the soil.

The volume infiltrated during timed intervals is converted to an incremental infiltration velocity, usually expressed in centimeters per hour or inches per hour and plotted verses elapsed time. The maximum-steady state or average incremental infiltration velocity, depending on the purpose/application of the test is equivalent to the infiltration rate".

Along the bottom of the infiltration test pits, dual infiltration rings were inserted 7 cm vertically into the soil by an impact-absorbing hammer. Guelph tubes, also referred to as bubblers were installed to maintain constant water level in each of the rings. Water levels were maintained at a constant level in both the inner ring and annular space between rings throughout the test, to prevent flow of water from one ring to the other.

The volume of liquid used during each measured time interval was converted into an incremental infiltration velocity of both the inner ring in the annular space using the following equations:

For the inner ring calculated as follows:

$$Vir=\Delta Vir/(Air\Delta t)$$

where:

Vir = inner ring incremental infiltration velocity, cm/hr

ΔVir = volume of water used during time interval to maintain constant head in the inner ring, cm^3

Air = internal area of the inner ting, cm^2

Δt = time interval, hr

The last reading was used for design purposes in each of the test pits. The testing data sheets are attached in Appendix B and summarized in the table below. These excavations were immediately backfilled with the excavated soils and compacted. The double ring infiltration results are shown in Appendix B.

Test No.	Depth (feet bgs)	Classification	Infiltration Rate (cm/hr)	(in/hr)
1	7.5'	Sandy SILT	0.26	0.10
2	5'	Sandy SILT	0.10	0.04
3	7.5'	Sandy SILT	0.40	0.16

Groundwater Information

Our firm had recently performed a "Geotechnical Engineering Investigation" dated December 8, 2014 for the subject property and excavated an additional eleven (11) exploratory trenches to depths ranging between 5 and 15 feet and one (1) boring to a depth of 50 feet. Groundwater was encountered at a depth of 36 feet below ground surface. The exposed sidewalls of our borings did not reveal any evidence (mottling, etc.) that groundwater had been near the surface.

Discussion of Results

Based upon the results of our testing, the subsurface soils encountered in the proposed on-site drainage disposal system shall utilize a conservative design rate of 0.1 in/hr. All systems must meet the latest city and/or county specifications and California Regional Water Quality Control Board (CRWQCB) requirements.

It is our opinion that the site is suitable for stormwater infiltration without increasing the potential of settlement of proposed and existing structures located either on or adjacent to the subject site. In addition, the potential for hydro-consolidation and the susceptibility for any ground settlements are considered very low. Foundations shall be set back a minimum distance of 10 feet from the drainage disposal system and the bottom of footing shall be a minimum of 10 feet from the expected zone of saturation. The boundary of the zone of saturation may be assumed to project downward from the top of the permeable portion of the disposal system at an inclination of 1 to 1 or flatter, as determined by the soils engineer.

Closure

The recommendations and conclusions contained in this report are based upon the soil conditions uncovered in our test excavations. No warranty of the soil condition between our excavations is implied. NorCal Engineering should be notified for possible further recommendations if unexpected to unfavorable conditions are encountered during construction phase.

This firm should have the opportunity to review the final plans to verify that all our recommendations are incorporated. This report and all conclusions are subject to the review of the controlling authorities for the project. Our representative should be present during the grading operations and construction phase to certify that such recommendations are complied within the field.

This geotechnical investigation has been conducted in a manner consistent with the level of care and skill exercised by members of our profession currently practicing under similar conditions in the Southern California area. All work was performed under the supervision of the Geotechnical Engineer. No other warranty, expressed or implied is made. No other warranty, expressed or implied is made.

We appreciate this opportunity to be of service to you. If you have any further questions, please do not hesitate to contact the undersigned.

Respectfully submitted,
NORCAL ENGINEERING

Keith D. Tucker
Project Engineer
R.G.E. 841



Scott D. Spensiero
Project Manager

List of Appendices

(in order of appearance)

Appendix A

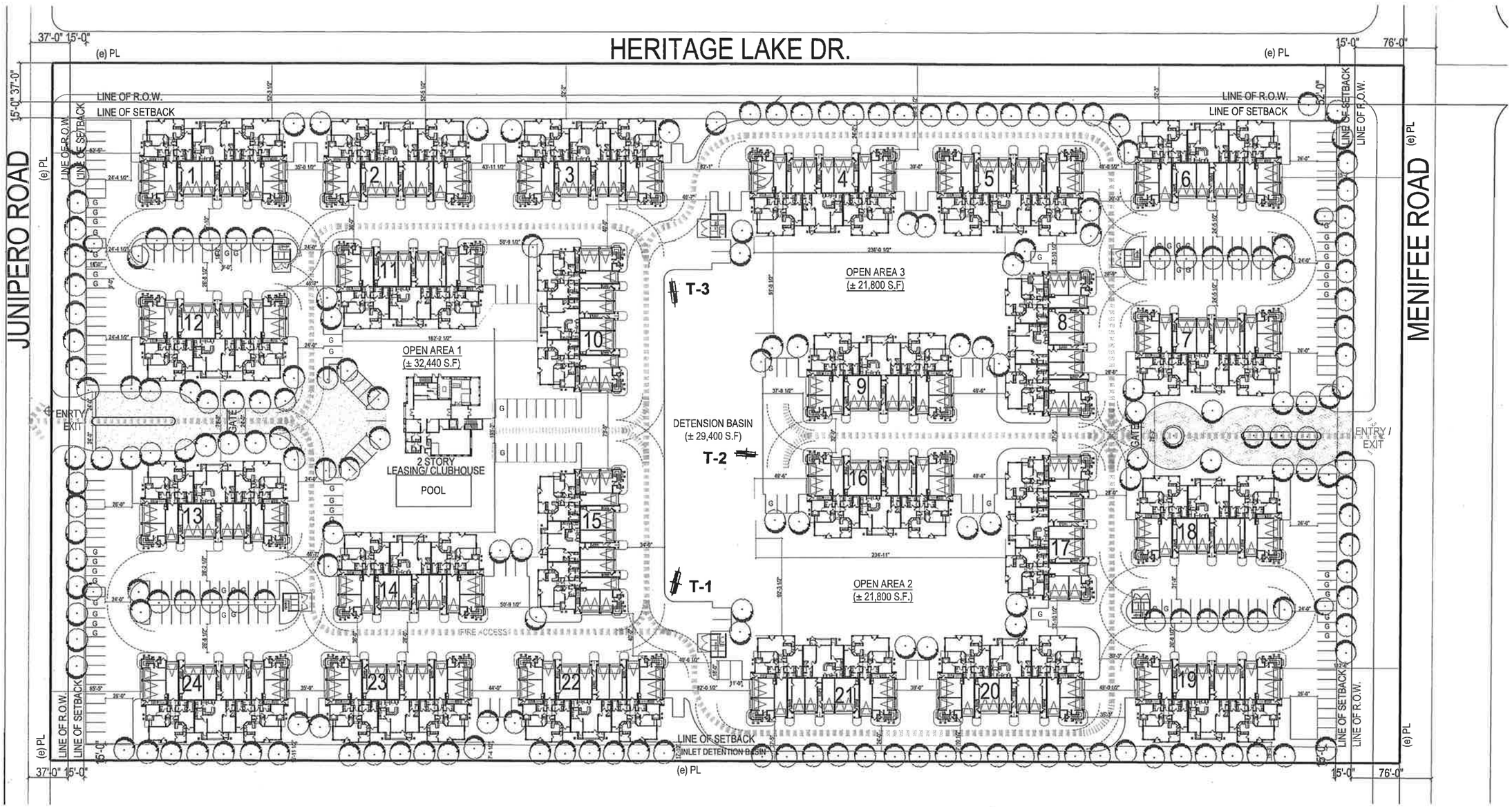
Site Plan

Appendix B

Log of Trenches T-1 to T-3

Field Test Data

Appendix A



N

0' 50' 100' 200'

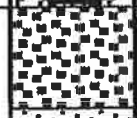
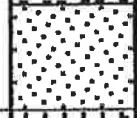
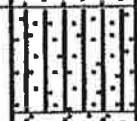
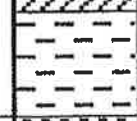
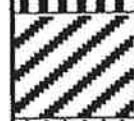
1 INCH = 100 FEET

NorCal Engineering
SOILS AND GEOTECHNICAL CONSULTANTS

PROJECT 17802-14 | DATE DECEMBER 2014

SITE PLAN

Appendix B

MAJOR DIVISION			GRAPHIC SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL, SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SAND AND SANDY SOILS	CLEAN SAND (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	SANDS WITH FINE (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND-SILT MIXTURES
				SC	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

UNIFIED SOIL CLASSIFICATION SYSTEM

KEY:

- Indicates 2.5-inch Inside Diameter. Ring Sample.
- Indicates 2-inch OD Split Spoon Sample (SPT).
- Indicates Shelby Tube Sample.
- Indicates No Recovery.
- Indicates SPT with 140# Hammer 30 in. Drop.
- Indicates Bulk Sample.
- Indicates Small Bag Sample.
- Indicates Non-Standard
- Indicates Core Run.

COMPONENT PROPORTIONS

DESCRIPTIVE TERMS	RANGE OF PROPORTION
Trace	1 - 5%
Few	5 - 10%
Little	10 - 20%
Some	20 - 35%
And	35 - 50%

COMPONENT DEFINITIONS

COMPONENT	SIZE RANGE
Boulders	Larger than 12 in
Cobbles	3 in to 12 in
Gravel	3 in to No 4 (4.5mm)
Coarse gravel	3 in to 3/4 in
Fine gravel	3/4 in to No 4 (4.5mm)
Sand	No. 4 (4.5mm) to No. 200 (0.074mm)
Coarse sand	No. 4 (4.5 mm) to No. 10 (2.0 mm)
Medium sand	No. 10 (2.0 mm) to No. 40 (0.42 mm)
Fine sand	No. 40 (0.42 mm) to No. 200 (0.074 mm)
Silt and Clay	Smaller than No. 200 (0.074 mm)

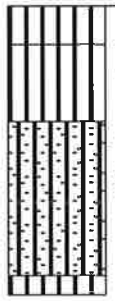
MOISTURE CONTENT

DRY	Absence of moisture, dusty, dry to the touch.
DAMP	Some perceptible moisture; below optimum
MOIST	No visible water; near optimum moisture content
WET	Visible free water, usually soil is below water table.

RELATIVE DENSITY OR CONSISTENCY VERSUS SPT N -VALUE

COHESIONLESS SOILS		COHESIVE SOILS		
Density	N (blows/ft)	Consistency	N (blows/ft)	Approximate Undrained Shear Strength (psf)
Very Loose	0 to 4	Very Soft	0 to 2	< 250
Loose	4 to 10	Soft	2 to 4	250 - 500
Medium Dense	10 to 30	Medium Stiff	4 to 8	500 - 1000
Dense	30 to 50	Stiff	8 to 15	1000 - 2000
Very Dense	over 50	Very Stiff	15 to 30	2000 - 4000
		Hard	over 30	> 4000

Christianson & Company 17802-14	Log of Trench T-1
Boring Location: Menifee	
Date of Drilling: 11/22/14	Groundwater Depth: None Encountered
Drilling Method: Backhoe	
Hammer Weight:	Drop:
Surface Elevation: Not Measured	



Depth (feet)	Lith-ology	Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: % Passing 200 Sieve
0		FILL Sandy SILT Brown, soft, damp					
		NATURAL Sandy SILT Brown, stiff, damp					
5		Silty (fine to coarse grained) SAND Brown, very dense, damp; with occasional gravel and slightly clay					
		Sandy SILT Brown, very stiff, moist; slight clay content					
10		Boring completed at depth of 7.5'					
15							
20							
25							
30							
35							

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECT\17802-14.log Date: 12/4/2014

NorCal Engineering

Christianson & Company 17802-14	Log of Trench T-2
Boring Location: Menifee	
Date of Drilling: 11/22/14	Groundwater Depth: None Encountered
Drilling Method: Backhoe	
Hammer Weight:	Drop:
Surface Elevation: Not Measured	

Depth (feet)	Lith-ology	Material Description	Samples		Laboratory		
			Type	Blow Counts	Moisture	Dry Density	% Passing 200 Sieve
0		FILL Sandy SILT Brown, soft, damp					
		NATURAL Sandy SILT Brown, stiff, damp; slightly clayey					
5		GWT not encountered Boring completed at depth of 5'					
10							
15							
20							
25							
30							
35							

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECT\17802-14.log Date: 12/4/2014

NorCal Engineering

Christianson & Company 17802-14	Log of Trench T-3

Boring Location: Menifee	
Date of Drilling: 11/22/14	**Groundwater Depth: None Encountered**
Drilling Method: Backhoe	
Hammer Weight:	**Drop:**
Surface Elevation: Not Measured	

Depth (feet)	Lith-ology	Material Description	Samples		Laboratory		
			Type	Blow Counts	Moisture	Dry Density	% Passing 200 Sieve
0		FILL Sandy SILT Brown, soft, damp NATURAL Sandy SILT Brown, stiff to very stiff, damp; with some clay					
5		GWT not encountered					
		Boring completed at depth of 7.5'					
10							
15							
20							
25							
30							
35							

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECT\17802-14.log Date: 12/4/2014

NorCal Engineering

SOILS AND GEOTECHNICAL CONSULTANTS
10641 HUMBOLT STREET LOS ALAMITOS, CA 90720
(562)799-9469 FAX (562)799-9459

Project: Christianson & Company
Project No.: 17802-14
Date: 11/22/14

Test No.: 1
Depth: 7.5'
Tested By: J.S.

	Time (hr/min)	Change Time (min)	Cumulative Time (min)	Inner Ring Reading (cm)	Inner Ring Change (cm)	Inner Ring Flow (cc)	Outer Ring Reading (cm)	Outer Ring Change (cm)	Outer Ring Flow (cc)	Inner Ring Inf Rate (cm/hr)	Outer Ring Inf Rate (cm/hr)	Inner Ring Inf Rate (ft/hr)
1	7:56			43.7			108.3					
	8:06	10	10	44.5	0.8		108.3	0.0				
2	8:06			44.5			108.3					
	8:16	10	20	45.3	0.8		108.3	0.0				
3	8:16			45.3			108.3					
	8:26	10	30	45.7	0.4		108.7	0.4				
4	8:26			45.7			108.7					
	8:36	10	40	45.7	0.0		108.7	0.0				
5	8:36			45.7			108.7					
	8:46	10	50	45.9	0.2		108.9	0.2				
6	8:46			45.9			108.9					
	8:56	10	60	46.0	0.1		108.9	0.0		0.6	0.0	
7	8:56			46.0			108.9					
	9:06	10	70	46.1	0.1		108.9	0.0		0.6	0.0	
8	9:06			46.1			108.9					
	9:16	10	80	46.1	0.0		109.0	0.1		0.0	0.6	
9	9:16			46.1			109.0					
	9:26	10	90	46.2	0.1		109.0	0.0		0.6	0.0	
10	9:26			46.2			109.0					
	9:36	10	100	46.2	0.0		109.1	0.1		0.0	0.6	
11	9:36			46.2			109.1					
	9:46	10	110	46.2	0.0		109.1	0.0		0.0	0.0	
12	9:46			46.2			109.1					
	9:56	10	120	46.2	0.0		109.1	0.0		0.0	0.0	

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SOILS AND GEOTECHNICAL CONSULTANTS
10641 HUMBOLT STREET LOS ALAMITOS, CA 90720
(562)799-9469 FAX (562)799-9459

Project: Christianson & Company
Project No.: 17802-14
Date: 11/22/14

Test No.: 2
Depth: 5'
Tested By: J.S.

	Time (hr/min)	Change Time (min)	Cumulative Time (min)	Inner Ring Reading (cm)	Inner Ring Change (cm)	Inner Ring Flow (cc)	Outer Ring Reading (cm)	Outer Ring Change (cm)	Outer Ring Flow (cc)	Inner Ring Inf Rate (cm/hr)	Outer Ring Inf Rate (cm/hr)	Inner Ring Inf Rate (ft/hr)
1	10:23			43.6			108.9					
	10:33	10	10	44.0	0.4		110.0	1.1				
2	10:33			44.0			110.0					
	10:43	10	20	44.2	0.2		110.3	0.3				
3	10:43			44.2			110.3					
	10:53	10	30	44.2	0.0		110.3	0.0				
4	10:53			44.2			110.3					
	11:03	10	40	44.3	0.1		110.4	0.1				
5	11:03			44.3			110.4					
	11:13	10	50	44.3	0.0		110.4	0.0				
6	11:13			44.3			110.4					
	11:23	10	60	44.3	0.0		110.5	0.1		0.0	0.6	
7	11:23			44.3			110.5					
	11:33	10	70	44.3	0.0		110.6	0.1		0.0	0.6	
8	11:33			44.3			110.6					
	11:43	10	80	44.3	0.0		110.6	0.0		0.0	0.0	
9	11:43			44.3			110.6					
	11:53	10	90	44.3	0.0		110.6	0.0		0.0	0.0	
10	11:53			44.3			110.6					
	12:03	10	100	44.4	0.1		110.6	0.0		0.6	0.0	
11	12:03			44.4			110.6					
	12:13	10	110	44.4	0.0		110.7	0.1		0.0	0.6	
12	12:13			44.4			110.7					
	12:23	10	120	44.4	0.0		110.7	0.0		0.0	0.0	

NorCal Engineering

SOILS AND GEOTECHNICAL CONSULTANTS
10641 HUMBOLT STREET LOS ALAMITOS, CA 90720
(562)799-9469 FAX (562)799-9459

Project: Christianson & Company
Project No.: 17802-14
Date: 11/22/14

Test No.: 3
Depth: 7.5'
Tested By: J.S.

	Time (hr/min)	Change Time (min)	Cumulative Time (min)	Inner Ring Reading (cm)	Inner Ring Change (cm)	Inner Ring Flow (cc)	Outer Ring Reading (cm)	Outer Ring Change (cm)	Outer Ring Flow (cc)	Inner Ring Inf Rate (cm/hr)	Outer Ring Inf Rate (cm/hr)	Inner Ring Inf Rate (ft/hr)
1	12:43			46.2			109.0					
	12:53	10	10	46.2	0.0		109.2	0.2				
2	12:53			46.2			109.2					
	1:03	10	20	46.2	0		109.3	0.1				
3	1:03			46.2			109.3					
	1:13	10	30	46.3	0.1		109.4	0.1				
4	1:13			46.3			109.4					
	1:23	10	40	46.3	0.0		109.5	0.1				
5	1:23			46.3			109.5					
	1:33	10	50	46.4	0.1		109.6	0.1				
6	1:33			46.4			109.6					
	1:43	10	60	46.5	0.1		109.7	0.1		0.6	0.6	
7	1:43			46.5			109.7					
	1:53	10	70	46.5	0.0		109.8	0.1		0.0	0.6	
8	1:53			46.5			109.8					
	2:03	10	80	46.6	0.1		109.9	0.1		0.6	0.6	
9	2:03			46.6			109.9					
	2:13	10	90	46.7	0.1		110.0	0.1		0.6	0.6	
10	2:13			46.7			110.0					
	2:23	10	100	46.7	0.0		110.0	0.0		0.0	0.0	
11	2:23			46.7			110.0					
	2:33	10	110	46.8	0.1		110.1	0.1		0.6	0.6	
12	2:33			46.8			110.1					
	2:43	10	120	46.9	0.1		110.2	0.1		0.6	0.6	

Hydrology Study

FOR

THE VILLAGE AT JUNIPERO

APN 333-070-018, 019 & 053
IN SECTION 23, T5S, R3W, SBM

FOR: North Bayport Industrial Park II, LTD.
2245 W. 190th Street
Torrance, Ca. 90504
Telephone: 310-326-2530
Contact: Don Carruth



PREPARED BY: KEITH CHRISTIANSEN
DATE: January 2023

Christiansen & Company
5225 Canyon Crest Drive, Suite 251
Riverside, Ca. 92507
Ph: 951-323-4713

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IN THE CITY OF MENIFEE, CALIFORNIA

HYDROLOGY AND HYDRAULICS REPORT FOR THE VILLAGE AT JUNIPERO

APN 333-070-018, 019 & 053

IN SECTION 23, T5S, R3W, SBM

Site Description:

The Village at Junipero is a 240 unit apartment complex development located at the northwest corner of Menifee Road and McCall Blvd between Menifee Road and Junipero Road. This project comprises 19.25 acres.

The existing condition of the property has one flowline through the property from the southeast corner to the northwest corner. This drainage course shall be calculated for 100yr flow, volume and time of concentration. The entire existing flow pattern shall be eliminated with the proposed development

The units of the project have been designed as 24 - 10 units structures. This project consists of 3 Storm Drain Systems. The westerly ½ of the property drains through a series of 2'x2' Prinsco Grate Inlets located in project 4' Wide valley Gutters, and a series of 12", 18" and 24" HDPE Pipe. The easterly ½ also drains through a series of 2'x2' Prinsco Grate Inlets located in project 4' Wide valley Gutters, and a series of 12", 18" and 24" HDPE Pipe. The westerly drainage system shall be connected to a 96" Contech Underground Storage System (12000 cf) (for WQMP "first flush" containment and allowed to overflow through a 24" HDPE Pipe to the existing 60" Storm Drain Pipe that Bisects the property. The easterly drainage system shall be connected to a 96" Contech Underground Storage System (15000 cf) (for WQMP "first flush" containment and allowed to overflow through a 24" HDPE Pipe to the existing 60" Storm Drain Pipe that Bisects the property. Please note that a 48"/60" HDPE existing storm drain system has been constructed through the center of the Village at Junipero. Said storm drain collects all offsite drainage from the south and passes through the 48"/60" HDPE Pipe and connects to an existing Culvert crossing Heritage Lakes and connects to the existing channel within Tract No. 31098. Consultants for Tract No. 31098 have meet with our staff to ensure that the HGL withing this pipe is low enough to service The Village at Junipero and all proposed flows from the Village at Junipero shall be contained in the existing storm drain pipe.

Lastly, all storm drain systems for the perimeter streets (to the Village at Junipero) of Junipero Road, Heritage Lake Dr. and Menifee Rd. are existing per Tract. No. 31098 Improvement Plans

Purpose of this study:

The purpose of this study is to determine the 100yr-1hr, 3-hr, 6hr and 24hr runoff accumulated by proposed improvements of this the project. All 2'x2' Prinsco Drains, HDPE Pipe and Storage Chambers shall be sized for zero ponding on site.

Sources:

The majority soil type for this project is HcC, GyA, EpC2, EyB, EnC2 and CkF2per Web Soils Survey. This coincides with soil type "A", "C" and "D" per RCFD&WCD. The percentages per respective soils type were used in the RCFC&WCD Rational Method – Bonadiman Program and the SUH Program (volumes).

Rainfall intensity data for the above storm events were derived from NOAA Atlas 14 for this location

RCFC&WCD provides much of the bulk of this report and is derived directly from their hydrology manual. The pages have been modified with lines showing the pertinent data for this report.

Analysis:

In keeping with the recently accepted parameters of the City of Menifee, we find that Per the RCFC&WCD manual and RCFC&WCD Rational and SUH Methods the AMCII numbers were calculated and within the program and noted on the calculations section of this report. The development type is Apartment which leads us to use Plate D-5.2 when using an AMCII to acquire our coefficient of runoff.

Below are the flows, volumes and time of concentrations for the project. All Tributary Areas (DMA) coincide to the respective Nodes within the DMA and specific grate inlet Node. Lengths of flow lines between each DMA and height difference are noted within the tables below. Please note the volumes listed are per the critical 100yr storm event (3hr, 6hr or 24hr).

Existing Drainage Area

Tributary	Max. Q100 (cfs)	Max. V100 (cf)	Tc (min.)	Nodes	Length between Nodes (ft)	Height Diff. Bet.Nodes(ft)
EDMA1	14.285	159078	21.085	1 2	748	4.2
EDMA2	10.596	149741	12.300	2 3	631	0.5
TOTAL	24.881	308819	33.39		1379	4.7

Drainage Area (DA1)

Tributary	Max. Q100 (cfs)	Max. V100 (cf)	Tc (min.)	Nodes	Length between Nodes (ft)	Height Diff. Bet.Nodes(ft)
DMA1	2.072	3299	5.00	23 32	60	0.27
DMA2	1.650	2627	5.00	28 29	100	0.58
DMA3	3.811	7575	7.586	30 31	95	0.12
DMA13	3.415	5362	6.061	19 20	100	0.43
DMA14	3.574	3108	5.791	24 22	100	0.54
DMA15	2.522	2350	5.929	24 23	100	0.48
DMA16	5.265	9957	6.912	21 25	180	1.30
DMA17	1.792	3842	7.271	26 27	170	0.85
TOTAL	18.830	37760	21.028			

Drainage Area (DA2)

Tributary	Max. Q100 (cfs)Max.	Max. V100 (cf)	Tc (min.)	Nodes	Length between Nodes (ft)	Height Diff. Bet.Nodes(ft)
DMA4	6.118	11790	7.159	8 9	225	2.13
DMA5	4.837	9469	7.371	10 11	220	1.72
DMA6	1.476	2382	5.128	12 13	70	0.342
DMA7	5.461	11301	8.138	6 7	220	1.02
DMA8	1.952	3299	5.595	14 15	70	0.22
DMA9	1.789	2251	5.000	16 17	65	0.32
DMA10	5.265	1759	5.378	3 4	80	0.40
DMA11	4.027	7575	6.839	1 2	180	1.37
DMA12	3.976	16779	8.254	1 18	210	0.85
TOTAL	31.730	66329	20.678			

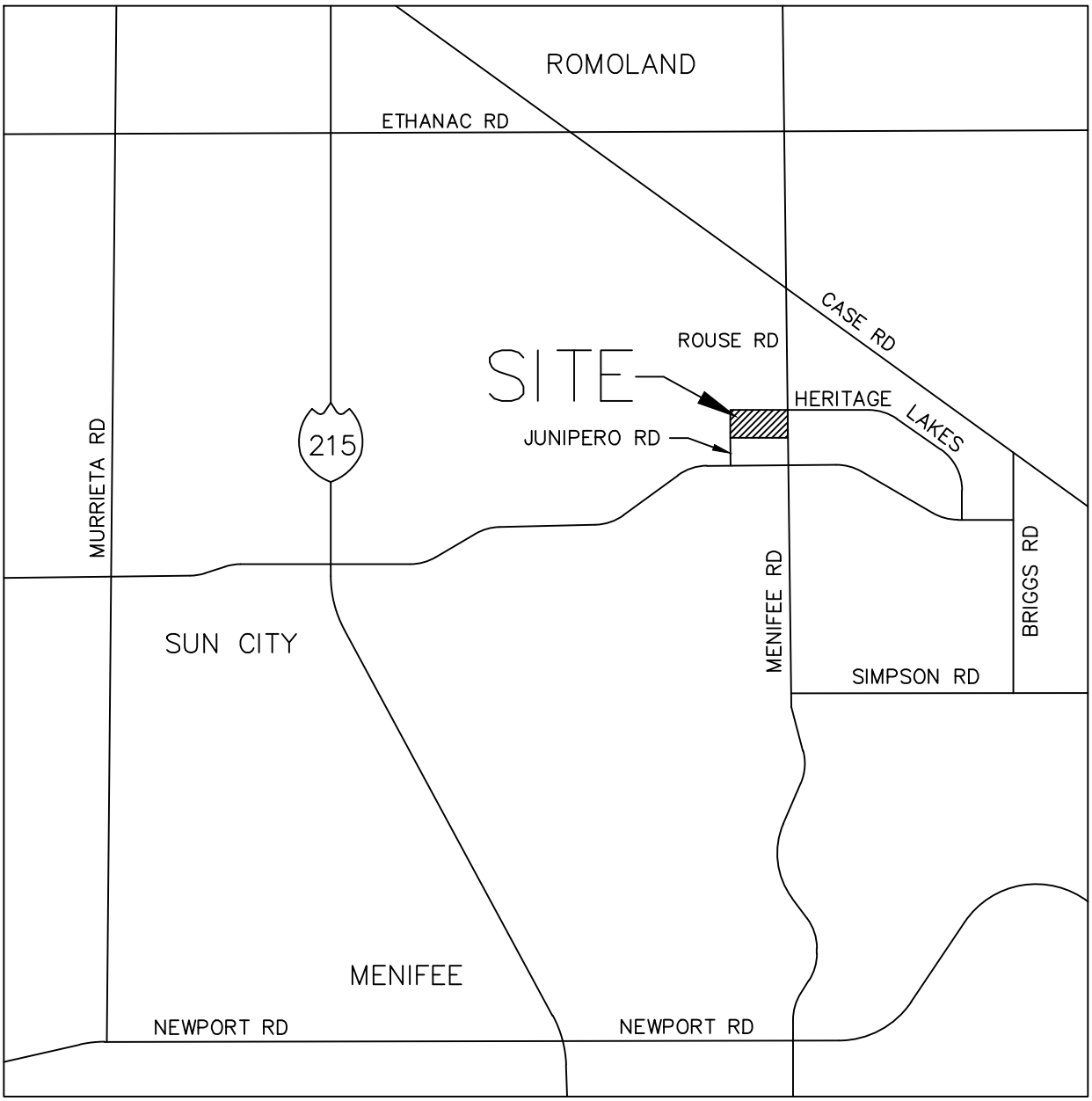
WQMP Worksheets

The project site is separated into a west half and an east half of the site. The west half shall drain into a 96" Contech Underground Stormwater Retention System (12000 cf) to ensure the WQMP Worksheet Calculation of Volume for DMA1 (10513 cf). The east half shall drain into a 96" Contech Underground Stormwater Retention System (15000 cf) to ensure the WQMP Worksheet Calculation of Volume for DMA2 (14569 cf). All WQMP required 1st flush requirements have been met.

Conclusions:

If the designs contained within this report and the plans that are based upon its findings are followed, the design shall provide the protection for the above storm water flows. Therefore, the entire site has been designed for complete storm drain and grate inlet containment of the respective critical storm event. All "first flush" WQMP measures have been processed through the two 96" Contech Underground Stormwater Retention Systems located withing the project and parallel to the existing 60" HDPE Storm Drain Pipe.

LOCATION MAP



VICINITY MAP

N.T.S.

NOAA ATLAS 14 PRECIPITATION TABLE

www.nws.noaa.gov

NOAA's National Weather Service
Hydrometeorological Design Studies Center
Precipitation Frequency Data Server (PFDS)

Home Site Map News Organization Search NWS All NOAA Go

General Info
- Homepage
- Current Projects
- FAQ
- Glossary

Precipitation Frequency (PF)
- PF Data Server
- PF in GIS Format
- PF Maps
- Temporal Distr.
- Time Series Data
- PFDS Perform.
- PF Documents

Probable Maximum Precipitation (PMP)
- PMP Documents

Miscellaneous
- Publications
- AEP Storm Analysis
- Record Precipitation

Contact Us
- Inquiries
- List-server

USA.gov

NOAA ATLAS 14 POINT PRECIPITATION FREQUENCY ESTIMATES: CA

DATA DESCRIPTION

Data type: precipitation depth **Units:** english **Time series type:** partial duration

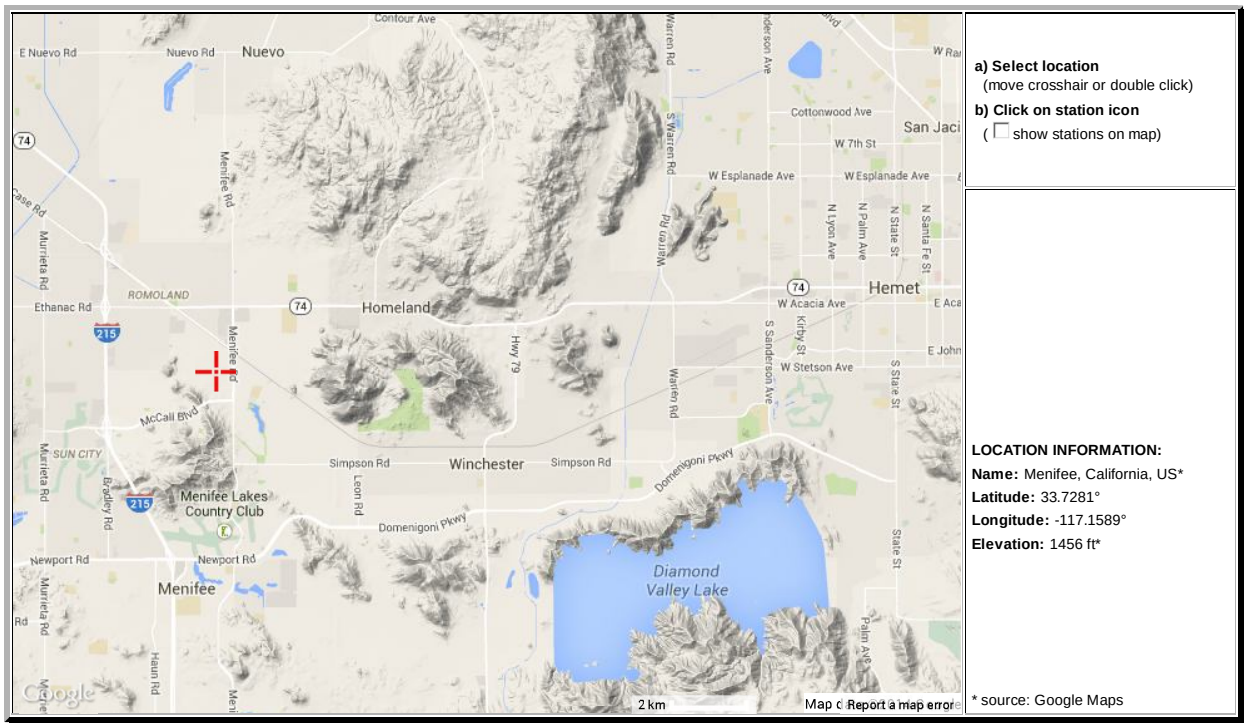
SELECT LOCATION

1. Manually:

a) Enter location (decimal degrees, use "-" for S and W): latitude: longitude: submit

b) Select station (click here for a list of stations used in frequency analysis for CA): select station

2. Use map:



a) Select location
(move crosshair or double click)

b) Click on station icon
(show stations on map)

LOCATION INFORMATION:
Name: Menifee, California, US*
Latitude: 33.7281°
Longitude: -117.1589°
Elevation: 1456 ft*

* source: Google Maps

POINT PRECIPITATION FREQUENCY (PF) ESTIMATES

WITH 90% CONFIDENCE INTERVALS AND SUPPLEMENTARY INFORMATION
NOAA Atlas 14, Volume 6, Version 2

PF tabular PF graphical Supplementary information Print Page

PDS-based precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.084 (0.071-0.102)	0.122 (0.102-0.147)	0.173 (0.144-0.210)	0.217 (0.179-0.265)	0.279 (0.222-0.353)	0.329 (0.257-0.425)	0.382 (0.290-0.507)	0.438 (0.324-0.599)	0.519 (0.367-0.741)	0.585 (0.399-0.866)
10-min	0.121 (0.101-0.146)	0.175 (0.146-0.211)	0.248 (0.207-0.301)	0.311 (0.257-0.380)	0.399 (0.319-0.506)	0.471 (0.368-0.610)	0.547 (0.416-0.726)	0.628 (0.464-0.859)	0.744 (0.526-1.06)	0.838 (0.572-1.24)
15-min	0.146 (0.123-0.177)	0.211 (0.177-0.255)	0.300 (0.250-0.363)	0.376 (0.310-0.459)	0.483 (0.385-0.611)	0.570 (0.445-0.737)	0.661 (0.503-0.878)	0.760 (0.561-1.04)	0.900 (0.636-1.28)	1.01 (0.692-1.50)
30-min	0.239 (0.200-0.288)	0.345 (0.288-0.417)	0.490 (0.409-0.594)	0.614 (0.507-0.750)	0.789 (0.630-0.999)	0.931 (0.727-1.21)	1.08 (0.822-1.44)	1.24 (0.917-1.70)	1.47 (1.04-2.10)	1.66 (1.13-2.45)
60-min	0.357 (0.299-0.430)	0.514 (0.430-0.621)	0.731 (0.609-0.886)	0.915 (0.756-1.12)	1.18 (0.939-1.49)	1.39 (1.08-1.80)	1.61 (1.23-2.14)	1.85 (1.37-2.53)	2.19 (1.55-3.13)	2.47 (1.69-3.66)
2-hr	0.528 (0.442-0.637)	0.719 (0.601-0.868)	0.975 (0.813-1.18)	1.19 (0.983-1.45)	1.49 (1.19-1.88)	1.72 (1.34-2.23)	1.97 (1.50-2.61)	2.23 (1.65-3.04)	2.59 (1.83-3.69)	2.88 (1.96-4.26)
3-hr	0.648 (0.542-0.782)	0.864 (0.723-1.04)	1.15 (0.961-1.40)	1.39 (1.15-1.70)	1.72 (1.38-2.18)	1.98 (1.55-2.57)	2.25 (1.71-2.99)	2.53 (1.87-3.46)	2.92 (2.07-4.17)	3.23 (2.21-4.79)
6-hr	0.919 (0.769-1.11)	1.20 (1.01-1.45)	1.58 (1.32-1.91)	1.89 (1.56-2.31)	2.32 (1.85-2.93)	2.65 (2.07-3.43)	2.99 (2.28-3.97)	3.35 (2.47-4.58)	3.84 (2.71-5.48)	4.22 (2.88-6.25)
12-hr	1.20 (1.01-1.45)	1.58 (1.32-1.90)	2.07 (1.73-2.51)	2.48 (2.05-3.03)	3.05 (2.43-3.86)	3.49 (2.73-4.52)	3.95 (3.00-5.24)	4.42 (3.27-6.05)	5.08 (3.59-7.26)	5.60 (3.82-8.29)
24-hr	1.56 (1.38-1.80)	2.06 (1.82-2.38)	2.75 (2.42-3.18)	3.31 (2.90-3.87)	4.11 (3.48-4.95)	4.74 (3.93-5.83)	5.39 (4.37-6.79)	6.08 (4.80-7.87)	7.05 (5.34-9.49)	7.82 (5.73-10.9)

2-day	**1.84** (1.63-2.13)	**2.49** (2.20-2.87)	**3.36** (2.96-3.90)	**4.10** (3.59-4.79)	**5.14** (4.36-6.20)	**5.98** (4.96-7.35)	**6.85** (5.55-8.63)	**7.78** (6.13-10.1)	**9.09** (6.88-12.2)	**10.1** (7.43-14.1)
3-day	**1.95** (1.73-2.25)	**2.67** (2.36-3.09)	**3.66** (3.23-4.24)	**4.50** (3.93-5.25)	**5.68** (4.81-6.85)	**6.64** (5.51-8.16)	**7.64** (6.19-9.63)	**8.72** (6.88-11.3)	**10.2** (7.76-13.8)	**11.5** (8.41-16.0)
4-day	**2.09** (1.85-2.42)	**2.90** (2.56-3.35)	**4.01** (3.53-4.64)	**4.95** (4.33-5.78)	**6.29** (5.33-7.59)	**7.38** (6.12-9.08)	**8.53** (6.91-10.7)	**9.76** (7.70-12.6)	**11.5** (8.72-15.5)	**12.9** (9.48-18.0)
7-day	**2.35** (2.08-2.72)	**3.33** (2.94-3.85)	**4.69** (4.13-5.43)	**5.85** (5.12-6.83)	**7.53** (6.38-9.08)	**8.90** (7.38-10.9)	**10.4** (8.39-13.0)	**11.9** (9.41-15.4)	**14.2** (10.8-19.1)	**16.1** (11.8-22.4)
10-day	**2.48** (2.19-2.86)	**3.56** (3.14-4.11)	**5.06** (4.46-5.86)	**6.36** (5.56-7.42)	**8.24** (6.97-9.93)	**9.78** (8.11-12.0)	**11.4** (9.27-14.4)	**13.2** (10.4-17.1)	**15.8** (12.0-21.3)	**18.0** (13.2-25.1)
20-day	**2.91** (2.57-3.36)	**4.24** (3.75-4.90)	**6.13** (5.40-7.10)	**7.79** (6.81-9.09)	**10.2** (8.65-12.3)	**12.2** (10.2-15.1)	**14.4** (11.7-18.2)	**16.9** (13.3-21.8)	**20.4** (15.5-27.5)	**23.4** (17.1-32.6)
30-day	**3.47** (3.07-4.00)	**5.06** (4.46-5.84)	**7.33** (6.46-8.49)	**9.34** (8.16-10.9)	**12.3** (10.4-14.9)	**14.8** (12.3-18.2)	**17.6** (14.2-22.1)	**20.6** (16.3-26.7)	**25.1** (19.0-33.8)	**28.9** (21.2-40.3)
45-day	**4.07** (3.60-4.69)	**5.85** (5.17-6.76)	**8.44** (7.44-9.78)	**10.8** (9.40-12.6)	**14.2** (12.0-17.1)	**17.2** (14.2-21.1)	**20.4** (16.5-25.7)	**24.0** (19.0-31.1)	**29.5** (22.3-39.7)	**34.1** (25.0-47.6)
60-day	**4.76** (4.21-5.49)	**6.73** (5.94-7.78)	**9.61** (8.46-11.1)	**12.2** (10.7-14.2)	**16.1** (13.6-19.4)	**19.5** (16.1-23.9)	**23.2** (18.8-29.2)	**27.4** (21.6-35.4)	**33.7** (25.6-45.4)	**39.2** (28.7-54.6)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

Estimates from the table in csv format: precipitation frequency estimates Submit

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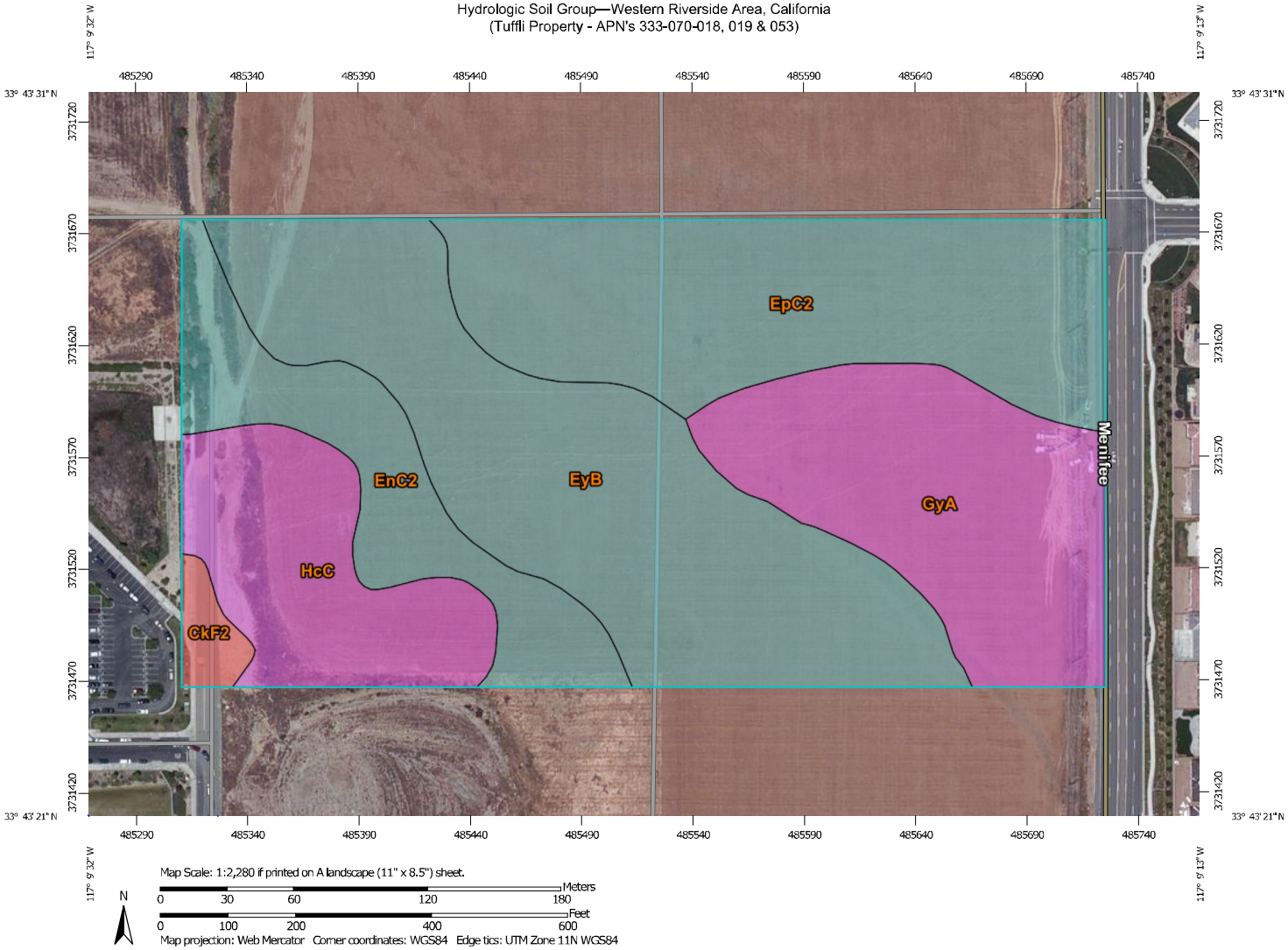
US Department of Commerce
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Silver Spring, MD 20910
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WEB SOILS SURVEY

Hydrologic Soil Group—Western Riverside Area, California
(Tuffli Property - APN's 333-070-018, 019 & 053)



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Western Riverside Area, California
Survey Area Data: Version 6, Dec 9, 2013

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 3, 2010—Jun 19, 2010

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Western Riverside Area, California (CA679)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
CkF2	Cieneba rocky sandy loam, 15 to 50 percent slopes, erod ed	D	0.3	1.5%
EnC2	Exeter sandy loam, 2 to 8 percent slopes, eroded	C	2.4	11.3%
EpC2	Exeter sandy loam, deep, 2 to 8 percent slopes, eroded	C	5.4	25.0%
EyB	Exeter very fine sandy loam, deep, 0 to 5 percent slope s	C	6.7	30.9%
GyA	Greenfield sandy loam, 0 to 2 percent slopes	A	4.2	19.3%
HcC	Hanford coarse sandy loam, 2 to 8 percent slopes	A	2.6	12.1%
Totals for Area of Interest			**21.5**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

RCFC&WCD RATIONAL METHOD -100YR. – BONADIMAN PROGRAM

a) FLOWS AND TIME OF CONCENTRATION

i) EXISTING CONDITION

ii) EDMA1 AND EDMA2

```
                    Riverside County Rational Hydrology Program

        CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
                Rational Hydrology Study        Date: 01/04/23
File:EXIST100YREDMA1.out
        ---------------------------------------------------------------------
        EDMA 1 & EDMA2 - 100YR PRE-DEVELOPMENT




        ---------------------------------------------------------------------
         *********   Hydrology Study Control Information **********

         English (in-lb) Units used in input data file

        ---------------------------------------------------------------------


        Program License Serial Number 6351

        ---------------------------------------------------------------------
        Rational Method Hydrology Program based on
        Riverside County Flood Control & Water Conservation District
        1978 hydrology manual

        Storm event (year) =  100.00 Antecedent Moisture Condition = 2

        Standard intensity-duration curves data (Plate D-4.1)
        For the [ Homeland-Winchester ] area used.
        10 year storm 10 minute intensity =  2.030(In/Hr)
        10 year storm 60 minute intensity =  0.800(In/Hr)
        100 year storm 10 minute intensity =  3.050(In/Hr)
        100 year storm 60 minute intensity =  1.200(In/Hr)

        Storm event year = 100.0
        Calculated rainfall intensity data:
        1 hour intensity =  1.200(In/Hr)
        Slope of intensity duration curve = 0.5200




        ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
        Process from Point/Station        1.000 to Point/Station        2.000
        **** INITIAL AREA EVALUATION ****
```

```
Initial area flow distance =   748.000(Ft.)
Top (of initial area) elevation =  1464.500(Ft.)
Bottom (of initial area) elevation =  1460.300(Ft.)
Difference in elevation =     4.200(Ft.)
Slope =    0.00561  s(percent)=       0.56
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    21.085 min.
Rainfall intensity =      2.067(In/Hr) for a   100.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.751
Decimal fraction soil group A = 0.500
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.500
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  76.50
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =     14.285(CFS)
Total initial stream area =        9.200(Ac.)
Pervious area fraction = 1.000


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        2.000 to Point/Station        3.000
**** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Top of natural channel elevation =   1460.300(Ft.)
End of natural channel elevation =   1459.800(Ft.)
Length of natural channel  =   631.000(Ft.)
Estimated mean flow rate at midpoint of channel =     21.008(CFS)

Natural valley channel type used
L.A. County flood control district formula for channel velocity:
 Velocity(ft/s) = (7 + 8(q(English Units)^.352)(slope^0.5)
Velocity using mean channel flow =   0.85(Ft/s)

Correction to map slope used on extremely rugged channels with
drops and waterfalls (Plate D-6.2)
        Normal channel slope =  0.0008
Corrected/adjusted channel slope =  0.0008
Travel time =   12.30 min.     TC =   33.39  min.


 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.752
Decimal fraction soil group A = 0.300
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.600
Decimal fraction soil group D = 0.100
```

```
RI index for soil(AMC 2)  =  80.60
Pervious area fraction =  1.000; Impervious fraction =  0.000
Rainfall intensity =      1.628(In/Hr) for a   100.0 year storm
Subarea runoff =     10.596(CFS) for      8.660(Ac.)
Total runoff =      24.881(CFS)  Total area =      17.860(Ac.)
End of computations, total study area =           17.86 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged RI index number =  78.5
```

RCFC&WCD RATIONAL METHOD -100YR. – BONADIMAN PROGRAM

iii) PROPOSED CONDITION

iv) DRAINAGE AREA DA1 – DMA'S 1-3, 13-17

v) DRAINAGE AREA DA2 – DMA'S 4-9, 10-12

DRAINAGE AREA DA1
DMA'S 1-3 & 13-17

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
Rational Hydrology Study Date: 01/03/23 File:T1.out

DMA 1- 100 YR

********* Hydrology Study Control Information **********

English (in-lb) Units used in input data file

Program License Serial Number 6351

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [Homeland-Winchester] area used.
10 year storm 10 minute intensity = 2.030(In/Hr)
10 year storm 60 minute intensity = 0.800(In/Hr)
100 year storm 10 minute intensity = 3.050(In/Hr)
100 year storm 60 minute intensity = 1.200(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.200(In/Hr)
Slope of intensity duration curve = 0.5200

++
Process from Point/Station 26.000 to Point/Station 32.000
**** INITIAL AREA EVALUATION ****

```
Initial area flow distance =    60.000(Ft.)
Top (of initial area) elevation =  1463.600(Ft.)
Bottom (of initial area) elevation =  1463.330(Ft.)
Difference in elevation =     0.270(Ft.)
Slope =    0.00450  s(percent)=       0.45
TC = k(0.323)*[(length^3)/(elevation change)]^0.2
Warning: TC computed to be less than 5 min.; program is assuming the
time of concentration is 5 minutes.
Initial area time of concentration =    5.000 min.
Rainfall intensity =      4.369(In/Hr) for a   100.0 year storm
APARTMENT subarea type
Runoff Coefficient = 0.878
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.200; Impervious fraction =  0.800
Initial subarea runoff =     2.072(CFS)
Total initial stream area =        0.540(Ac.)
Pervious area fraction = 0.200
End of computations, total study area =            0.54 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.200
Area averaged RI index number =  69.0
```

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
Rational Hydrology Study Date: 01/03/23 File:T2.out

DMA 2- 100 YR

********* Hydrology Study Control Information **********

English (in-lb) Units used in input data file

Program License Serial Number 6351

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [Homeland-Winchester] area used.
10 year storm 10 minute intensity = 2.030(In/Hr)
10 year storm 60 minute intensity = 0.800(In/Hr)
100 year storm 10 minute intensity = 3.050(In/Hr)
100 year storm 60 minute intensity = 1.200(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.200(In/Hr)
Slope of intensity duration curve = 0.5200

++
Process from Point/Station 28.000 to Point/Station 29.000
**** INITIAL AREA EVALUATION ****

```
Initial area flow distance =     1.000(Ft.)
Top (of initial area) elevation =  1463.900(Ft.)
Bottom (of initial area) elevation =  1463.320(Ft.)
Difference in elevation =     0.580(Ft.)
Slope =    0.58000  s(percent)=      58.00
TC = k(0.323)*[(length^3)/(elevation change)]^0.2
Warning: TC computed to be less than 5 min.; program is assuming the
time of concentration is 5 minutes.
Initial area time of concentration =    5.000 min.
Rainfall intensity =      4.369(In/Hr) for a   100.0 year storm
APARTMENT subarea type
Runoff Coefficient = 0.878
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.200; Impervious fraction =  0.800
Initial subarea runoff =     1.650(CFS)
Total initial stream area =        0.430(Ac.)
Pervious area fraction = 0.200
End of computations, total study area =            0.43 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.200
Area averaged RI index number =  69.0
```

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
Rational Hydrology Study Date: 01/03/23 File:T3.out

DMA 3- 100 YR

********* Hydrology Study Control Information **********

English (in-lb) Units used in input data file

Program License Serial Number 6351

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [Homeland-Winchester] area used.
10 year storm 10 minute intensity = 2.030(In/Hr)
10 year storm 60 minute intensity = 0.800(In/Hr)
100 year storm 10 minute intensity = 3.050(In/Hr)
100 year storm 60 minute intensity = 1.200(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.200(In/Hr)
Slope of intensity duration curve = 0.5200

++
Process from Point/Station 30.000 to Point/Station 31.000
**** INITIAL AREA EVALUATION ****

```
Initial area flow distance =    95.000(Ft.)
Top (of initial area) elevation =  1463.120(Ft.)
Bottom (of initial area) elevation =  1463.000(Ft.)
Difference in elevation =     0.120(Ft.)
Slope =    0.00126  s(percent)=       0.13
TC = k(0.323)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    7.586 min.
Rainfall intensity =      3.517(In/Hr) for a   100.0 year storm
APARTMENT subarea type
Runoff Coefficient = 0.874
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.200; Impervious fraction =  0.800
Initial subarea runoff =     3.811(CFS)
Total initial stream area =        1.240(Ac.)
Pervious area fraction = 0.200
End of computations, total study area =            1.24 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.200
Area averaged RI index number =  69.0
```

Riverside County Rational Hydrology Program

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Rational Hydrology Study Date: 01/03/23 File:ratt13.out

DMA 13- 100 YR

********* Hydrology Study Control Information **********

English (in-lb) Units used in input data file

Program License Serial Number 6351

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [Homeland-Winchester] area used.
10 year storm 10 minute intensity = 2.030(In/Hr)
10 year storm 60 minute intensity = 0.800(In/Hr)
100 year storm 10 minute intensity = 3.050(In/Hr)
100 year storm 60 minute intensity = 1.200(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.200(In/Hr)
Slope of intensity duration curve = 0.5200

++
Process from Point/Station 19.000 to Point/Station 20.000
**** INITIAL AREA EVALUATION ****

```
Initial area flow distance =   100.000(Ft.)
Top (of initial area) elevation =  1463.930(Ft.)
Bottom (of initial area) elevation =  1463.500(Ft.)
Difference in elevation =     0.430(Ft.)
Slope =    0.00430  s(percent)=       0.43
TC = k(0.323)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =     6.061 min.
Rainfall intensity =      3.953(In/Hr) for a   100.0 year storm
APARTMENT subarea type
Runoff Coefficient = 0.873
Decimal fraction soil group A = 0.100
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.900
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  65.30
Pervious area fraction =  0.200; Impervious fraction =  0.800
Initial subarea runoff =       3.415(CFS)
Total initial stream area =        0.990(Ac.)
Pervious area fraction = 0.200
End of computations, total study area =            0.99 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.200
Area averaged RI index number =  65.3
```

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
Rational Hydrology Study Date: 01/03/23 File:T14.out

DMA 14- 100 YR

********* Hydrology Study Control Information **********

English (in-lb) Units used in input data file

Program License Serial Number 6351

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [Homeland-Winchester] area used.
10 year storm 10 minute intensity = 2.030(In/Hr)
10 year storm 60 minute intensity = 0.800(In/Hr)
100 year storm 10 minute intensity = 3.050(In/Hr)
100 year storm 60 minute intensity = 1.200(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.200(In/Hr)
Slope of intensity duration curve = 0.5200

++
Process from Point/Station 24.000 to Point/Station 22.000
**** INITIAL AREA EVALUATION ****

```
Initial area flow distance =   100.000(Ft.)
Top (of initial area) elevation =  1463.950(Ft.)
Bottom (of initial area) elevation =  1463.410(Ft.)
Difference in elevation =     0.540(Ft.)
Slope =    0.00540  s(percent)=       0.54
TC = k(0.323)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =     5.791 min.
Rainfall intensity =      4.048(In/Hr) for a   100.0 year storm
APARTMENT subarea type
Runoff Coefficient = 0.833
Decimal fraction soil group A = 0.900
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.100
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  35.70
Pervious area fraction =  0.200; Impervious fraction =  0.800
Initial subarea runoff =     3.574(CFS)
Total initial stream area =        1.060(Ac.)
Pervious area fraction = 0.200
End of computations, total study area =            1.06 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.200
Area averaged RI index number =  35.7
```

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
Rational Hydrology Study Date: 01/03/23 File:T15.out

DMA 15- 100 YR

********* Hydrology Study Control Information **********

English (in-lb) Units used in input data file

Program License Serial Number 6351

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [Homeland-Winchester] area used.
10 year storm 10 minute intensity = 2.030(In/Hr)
10 year storm 60 minute intensity = 0.800(In/Hr)
100 year storm 10 minute intensity = 3.050(In/Hr)
100 year storm 60 minute intensity = 1.200(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.200(In/Hr)
Slope of intensity duration curve = 0.5200

++
Process from Point/Station 24.000 to Point/Station 23.000
**** INITIAL AREA EVALUATION ****

```
Initial area flow distance =   100.000(Ft.)
Top (of initial area) elevation =  1463.950(Ft.)
Bottom (of initial area) elevation =  1463.470(Ft.)
Difference in elevation =     0.480(Ft.)
Slope =    0.00480  s(percent)=       0.48
TC = k(0.323)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    5.929 min.
Rainfall intensity =      3.998(In/Hr) for a   100.0 year storm
APARTMENT subarea type
Runoff Coefficient = 0.841
Decimal fraction soil group A = 0.800
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.200
RI index for soil(AMC 2)  =  40.60
Pervious area fraction =  0.200; Impervious fraction =  0.800
Initial subarea runoff =     2.522(CFS)
Total initial stream area =        0.750(Ac.)
Pervious area fraction = 0.200
End of computations, total study area =            0.75 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.200
Area averaged RI index number =  40.6
```

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
Rational Hydrology Study Date: 01/03/23 File:T16.out

DMA 16- 100 YR

********* Hydrology Study Control Information **********

English (in-lb) Units used in input data file

Program License Serial Number 6351

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [Homeland-Winchester] area used.
10 year storm 10 minute intensity = 2.030(In/Hr)
10 year storm 60 minute intensity = 0.800(In/Hr)
100 year storm 10 minute intensity = 3.050(In/Hr)
100 year storm 60 minute intensity = 1.200(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.200(In/Hr)
Slope of intensity duration curve = 0.5200

++
Process from Point/Station 21.000 to Point/Station 25.000
**** INITIAL AREA EVALUATION ****

```
Initial area flow distance =   180.000(Ft.)
Top (of initial area) elevation =  1463.990(Ft.)
Bottom (of initial area) elevation =  1462.690(Ft.)
Difference in elevation =     1.300(Ft.)
Slope =    0.00722  s(percent)=       0.72
TC = k(0.323)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    6.912 min.
Rainfall intensity =      3.692(In/Hr) for a   100.0 year storm
APARTMENT subarea type
Runoff Coefficient = 0.875
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.200; Impervious fraction =  0.800
Initial subarea runoff =      5.265(CFS)
Total initial stream area =        1.630(Ac.)
Pervious area fraction = 0.200
End of computations, total study area =            1.63 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.200
Area averaged RI index number =  69.0
```

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
Rational Hydrology Study Date: 01/03/23 File:t17.out

DMA 17- 100 YR

********* Hydrology Study Control Information **********

English (in-lb) Units used in input data file

Program License Serial Number 6351

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [Homeland-Winchester] area used.
10 year storm 10 minute intensity = 2.030(In/Hr)
10 year storm 60 minute intensity = 0.800(In/Hr)
100 year storm 10 minute intensity = 3.050(In/Hr)
100 year storm 60 minute intensity = 1.200(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.200(In/Hr)
Slope of intensity duration curve = 0.5200

++
Process from Point/Station 26.000 to Point/Station 27.000
**** INITIAL AREA EVALUATION ****

```
Initial area flow distance =   170.000(Ft.)
Top (of initial area) elevation =  1463.600(Ft.)
Bottom (of initial area) elevation =  1462.750(Ft.)
Difference in elevation =     0.850(Ft.)
Slope =    0.00500  s(percent)=       0.50
TC = k(0.323)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =     7.271 min.
Rainfall intensity =      3.596(In/Hr) for a   100.0 year storm
APARTMENT subarea type
Runoff Coefficient = 0.874
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.200; Impervious fraction =  0.800
Initial subarea runoff =     1.792(CFS)
Total initial stream area =        0.570(Ac.)
Pervious area fraction = 0.200
End of computations, total study area =            0.57 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.200
Area averaged RI index number =  69.0
```

DRAINAGE AREA DA2
DMA'S 4-9 & 10-12

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
Rational Hydrology Study Date: 01/02/23 File:T4.out

DMA 4- 100 YR

********* Hydrology Study Control Information **********

English (in-lb) Units used in input data file

Program License Serial Number 6351

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [Homeland-Winchester] area used.
10 year storm 10 minute intensity = 2.030(In/Hr)
10 year storm 60 minute intensity = 0.800(In/Hr)
100 year storm 10 minute intensity = 3.050(In/Hr)
100 year storm 60 minute intensity = 1.200(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.200(In/Hr)
Slope of intensity duration curve = 0.5200

++
Process from Point/Station 8.000 to Point/Station 9.000
**** INITIAL AREA EVALUATION ****

```
Initial area flow distance =   225.000(Ft.)
Top (of initial area) elevation =  1464.810(Ft.)
Bottom (of initial area) elevation =  1462.680(Ft.)
Difference in elevation =     2.130(Ft.)
Slope =    0.00947  s(percent)=       0.95
TC = k(0.323)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    7.159 min.
Rainfall intensity =      3.625(In/Hr) for a   100.0 year storm
APARTMENT subarea type
Runoff Coefficient = 0.874
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.200; Impervious fraction =  0.800
Initial subarea runoff =     6.118(CFS)
Total initial stream area =        1.930(Ac.)
Pervious area fraction = 0.200
End of computations, total study area =            1.93 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.200
Area averaged RI index number =  69.0
```

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
Rational Hydrology Study Date: 01/02/23 File:T5.out

DMA 5- 100 YR

********* Hydrology Study Control Information **********

English (in-lb) Units used in input data file

Program License Serial Number 6351

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [Homeland-Winchester] area used.
10 year storm 10 minute intensity = 2.030(In/Hr)
10 year storm 60 minute intensity = 0.800(In/Hr)
100 year storm 10 minute intensity = 3.050(In/Hr)
100 year storm 60 minute intensity = 1.200(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.200(In/Hr)
Slope of intensity duration curve = 0.5200

++
Process from Point/Station 10.000 to Point/Station 11.000
**** INITIAL AREA EVALUATION ****

```
Initial area flow distance =   220.000(Ft.)
Top (of initial area) elevation =  1464.170(Ft.)
Bottom (of initial area) elevation =  1462.450(Ft.)
Difference in elevation =     1.720(Ft.)
Slope =    0.00782  s(percent)=       0.78
TC = k(0.323)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =     7.371 min.
Rainfall intensity =      3.570(In/Hr) for a   100.0 year storm
APARTMENT subarea type
Runoff Coefficient = 0.874
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.200; Impervious fraction =  0.800
Initial subarea runoff =      4.837(CFS)
Total initial stream area =        1.550(Ac.)
Pervious area fraction = 0.200
End of computations, total study area =            1.55 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.200
Area averaged RI index number =  69.0
```

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
Rational Hydrology Study Date: 01/02/23 File:T6.out

DMA 6- 100 YR

********* Hydrology Study Control Information **********

English (in-lb) Units used in input data file

Program License Serial Number 6351

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [Homeland-Winchester] area used.
10 year storm 10 minute intensity = 2.030(In/Hr)
10 year storm 60 minute intensity = 0.800(In/Hr)
100 year storm 10 minute intensity = 3.050(In/Hr)
100 year storm 60 minute intensity = 1.200(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.200(In/Hr)
Slope of intensity duration curve = 0.5200

++
Process from Point/Station 12.000 to Point/Station 13.000
**** INITIAL AREA EVALUATION ****

```
Initial area flow distance =    70.000(Ft.)
Top (of initial area) elevation =  1463.300(Ft.)
Bottom (of initial area) elevation =  1462.960(Ft.)
Difference in elevation =     0.340(Ft.)
Slope =    0.00486  s(percent)=       0.49
TC = k(0.323)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =     5.128 min.
Rainfall intensity =      4.312(In/Hr) for a   100.0 year storm
APARTMENT subarea type
Runoff Coefficient = 0.878
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.200; Impervious fraction =  0.800
Initial subarea runoff =      1.476(CFS)
Total initial stream area =        0.390(Ac.)
Pervious area fraction = 0.200
End of computations, total study area =            0.39 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.200
Area averaged RI index number =  69.0
```

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
Rational Hydrology Study Date: 01/02/23 File:T7.out

DMA 7- 100 YR

********* Hydrology Study Control Information **********

English (in-lb) Units used in input data file

Program License Serial Number 6351

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [Homeland-Winchester] area used.
10 year storm 10 minute intensity = 2.030(In/Hr)
10 year storm 60 minute intensity = 0.800(In/Hr)
100 year storm 10 minute intensity = 3.050(In/Hr)
100 year storm 60 minute intensity = 1.200(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.200(In/Hr)
Slope of intensity duration curve = 0.5200

++
Process from Point/Station 6.000 to Point/Station 7.000
**** INITIAL AREA EVALUATION ****

```
Initial area flow distance =   220.000(Ft.)
Top (of initial area) elevation =  1463.550(Ft.)
Bottom (of initial area) elevation =  1462.530(Ft.)
Difference in elevation =     1.020(Ft.)
Slope =    0.00464  s(percent)=       0.46
TC = k(0.323)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    8.183 min.
Rainfall intensity =      3.381(In/Hr) for a   100.0 year storm
APARTMENT subarea type
Runoff Coefficient = 0.873
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.200; Impervious fraction =  0.800
Initial subarea runoff =      5.461(CFS)
Total initial stream area =        1.850(Ac.)
Pervious area fraction = 0.200
End of computations, total study area =            1.85 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.200
Area averaged RI index number =  69.0
```

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
Rational Hydrology Study Date: 01/02/23 File:T8.out

DMA 8- 100 YR

********* Hydrology Study Control Information **********

English (in-lb) Units used in input data file

Program License Serial Number 6351

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [Homeland-Winchester] area used.
10 year storm 10 minute intensity = 2.030(In/Hr)
10 year storm 60 minute intensity = 0.800(In/Hr)
100 year storm 10 minute intensity = 3.050(In/Hr)
100 year storm 60 minute intensity = 1.200(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.200(In/Hr)
Slope of intensity duration curve = 0.5200

++
Process from Point/Station 14.000 to Point/Station 15.000
**** INITIAL AREA EVALUATION ****

```
Initial area flow distance =    70.000(Ft.)
Top (of initial area) elevation =  1463.220(Ft.)
Bottom (of initial area) elevation =  1463.000(Ft.)
Difference in elevation =     0.220(Ft.)
Slope =    0.00314  s(percent)=       0.31
TC = k(0.323)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    5.595 min.
Rainfall intensity =      4.121(In/Hr) for a   100.0 year storm
APARTMENT subarea type
Runoff Coefficient = 0.877
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.200; Impervious fraction =  0.800
Initial subarea runoff =     1.952(CFS)
Total initial stream area =        0.540(Ac.)
Pervious area fraction = 0.200
End of computations, total study area =            0.54 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.200
Area averaged RI index number =  69.0
```

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
Rational Hydrology Study Date: 01/02/23 File:T9.out

DMA 9- 100 YR

********* Hydrology Study Control Information **********

English (in-lb) Units used in input data file

Program License Serial Number 6351

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [Homeland-Winchester] area used.
10 year storm 10 minute intensity = 2.030(In/Hr)
10 year storm 60 minute intensity = 0.800(In/Hr)
100 year storm 10 minute intensity = 3.050(In/Hr)
100 year storm 60 minute intensity = 1.200(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.200(In/Hr)
Slope of intensity duration curve = 0.5200

++
Process from Point/Station 16.000 to Point/Station 17.000
**** INITIAL AREA EVALUATION ****

```
Initial area flow distance =    65.000(Ft.)
Top (of initial area) elevation =  1462.970(Ft.)
Bottom (of initial area) elevation =  1462.650(Ft.)
Difference in elevation =     0.320(Ft.)
Slope =    0.00492  s(percent)=       0.49
TC = k(0.323)*[(length^3)/(elevation change)]^0.2
Warning: TC computed to be less than 5 min.; program is assuming the
time of concentration is 5 minutes.
Initial area time of concentration =    5.000 min.
Rainfall intensity =      4.369(In/Hr) for a   100.0 year storm
APARTMENT subarea type
Runoff Coefficient = 0.871
Decimal fraction soil group A = 0.200
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.800
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  61.60
Pervious area fraction =  0.200; Impervious fraction =  0.800
Initial subarea runoff =       1.789(CFS)
Total initial stream area =        0.470(Ac.)
Pervious area fraction = 0.200
End of computations, total study area =            0.47 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.200
Area averaged RI index number =  61.6
```

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
Rational Hydrology Study Date: 01/02/23 File:tufflit10.out

DMA 10- 100 YR

********* Hydrology Study Control Information **********

English (in-lb) Units used in input data file

Program License Serial Number 6351

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [Homeland-Winchester] area used.
10 year storm 10 minute intensity = 2.030(In/Hr)
10 year storm 60 minute intensity = 0.800(In/Hr)
100 year storm 10 minute intensity = 3.050(In/Hr)
100 year storm 60 minute intensity = 1.200(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.200(In/Hr)
Slope of intensity duration curve = 0.5200

++
Process from Point/Station 3.000 to Point/Station 4.000
**** INITIAL AREA EVALUATION ****

```
Initial area flow distance =    80.000(Ft.)
Top (of initial area) elevation =  1463.810(Ft.)
Bottom (of initial area) elevation =  1463.410(Ft.)
Difference in elevation =     0.400(Ft.)
Slope =    0.00500  s(percent)=       0.50
TC = k(0.323)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    5.378 min.
Rainfall intensity =      4.206(In/Hr) for a   100.0 year storm
APARTMENT subarea type
Runoff Coefficient = 0.828
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  32.00
Pervious area fraction =  0.200; Impervious fraction =  0.800
Initial subarea runoff =     2.193(CFS)
Total initial stream area =        0.630(Ac.)
Pervious area fraction = 0.200


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        4.000 to Point/Station        5.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =  1463.410(Ft.)
Downstream point/station elevation =  1463.100(Ft.)
Pipe length  =   150.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     2.193(CFS)
Nearest computed pipe diameter  =    15.00(In.)
Calculated individual pipe flow  =     2.193(CFS)
Normal flow depth in pipe =    9.66(In.)
Flow top width inside pipe =   14.37(In.)
Critical Depth =    7.09(In.)
Pipe flow velocity =      2.62(Ft/s)
Travel time through pipe =    0.95 min.
Time of concentration (TC) =     6.33 min.
End of computations, total study area =           0.63 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.200
Area averaged RI index number =  32.0
```

Riverside County Rational Hydrology Program

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Rational Hydrology Study Date: 01/02/23 File:tufflit11.out

DMA 11- 100 YR

********* Hydrology Study Control Information **********

English (in-lb) Units used in input data file

Program License Serial Number 6351

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [Homeland-Winchester] area used.
10 year storm 10 minute intensity = 2.030(In/Hr)
10 year storm 60 minute intensity = 0.800(In/Hr)
100 year storm 10 minute intensity = 3.050(In/Hr)
100 year storm 60 minute intensity = 1.200(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.200(In/Hr)
Slope of intensity duration curve = 0.5200

++
Process from Point/Station 1.000 to Point/Station 2.000
**** INITIAL AREA EVALUATION ****

```
Initial area flow distance =   180.000(Ft.)
Top (of initial area) elevation =  1464.440(Ft.)
Bottom (of initial area) elevation =  1463.070(Ft.)
Difference in elevation =     1.370(Ft.)
Slope =    0.00761  s(percent)=       0.76
TC = k(0.323)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    6.839 min.
Rainfall intensity =      3.712(In/Hr) for a   100.0 year storm
APARTMENT subarea type
Runoff Coefficient = 0.875
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.200; Impervious fraction =  0.800
Initial subarea runoff =      4.027(CFS)
Total initial stream area =        1.240(Ac.)
Pervious area fraction = 0.200
End of computations, total study area =            1.24 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.200
Area averaged RI index number =  69.0
```

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
Rational Hydrology Study Date: 01/02/23 File:T12REV.out

DMA 12- 100 YR

********* Hydrology Study Control Information **********

English (in-lb) Units used in input data file

Program License Serial Number 6351

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [Homeland-Winchester] area used.
10 year storm 10 minute intensity = 2.030(In/Hr)
10 year storm 60 minute intensity = 0.800(In/Hr)
100 year storm 10 minute intensity = 3.050(In/Hr)
100 year storm 60 minute intensity = 1.200(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.200(In/Hr)
Slope of intensity duration curve = 0.5200

++

Process from Point/Station 1.000 to Point/Station 18.000
**** INITIAL AREA EVALUATION ****

```
Initial area flow distance =   210.000(Ft.)
Top (of initial area) elevation =  1464.440(Ft.)
Bottom (of initial area) elevation =  1463.590(Ft.)
Difference in elevation =     0.850(Ft.)
Slope =    0.00405  s(percent)=       0.40
TC = k(0.323)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    8.254 min.
Rainfall intensity =      3.366(In/Hr) for a   100.0 year storm
APARTMENT subarea type
Runoff Coefficient = 0.873
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.200; Impervious fraction =  0.800
Initial subarea runoff =     3.967(CFS)
Total initial stream area =        1.350(Ac.)
Pervious area fraction = 0.200
End of computations, total study area =            1.35 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.200
Area averaged RI index number =  69.0
```

RCFC&WCD SUH METHOD – 100 YR. – BONADIMAN PROGRAM

a) VOLUMES

i) EXISTING CONDITION

ii) EDMA1 AND EDMA2

U n i t H y d r o g r a p h A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

EDMA 1 - 100YR PRE-DEVELOPMENT VOLUME

Drainage Area = 9.20(Ac.) = 0.014 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 9.20(Ac.) = 0.014 Sq. Mi.
Length along longest watercourse = 748.00(Ft.)
Length along longest watercourse measured to centroid = 375.00(Ft.)
Length along longest watercourse = 0.142 Mi.
Length along longest watercourse measured to centroid = 0.071 Mi.
Difference in elevation = 4.20(Ft.)
Slope along watercourse = 29.6471 Ft./Mi.

```
Average Manning's 'N' = 0.030
Lag time =    0.066 Hr.
Lag time =     3.95 Min.
25% of lag time =     0.99 Min.
40% of lag time =     1.58 Min.
Unit time =     5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        9.20              0.51                  4.73

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        9.20              1.61                 14.81

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.514(In)
Area Averaged 100-Year Rainfall =    1.610(In)

Point rain (area averaged) =    1.610(In)
Areal adjustment factor =   99.99 %
Adjusted average point rain =    1.610(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     9.200           78.50          1.000
 Total Area Entered =      9.20(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
78.5  78.5      0.262     1.000        0.026       1.000      0.026
```

Sum (F) = 0.026

Area averaged mean soil loss (F) (In/Hr) = 0.026
Minimum soil loss rate ((In/Hr)) = 0.013
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

Slope of intensity-duration curve for a 1 hour storm =0.5500

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %		Unit Hydrograph (CFS)
1	0.083	126.517	27.057		2.509
2	0.167	253.035	48.463		4.493
3	0.250	379.552	12.767		1.184
4	0.333	506.069	5.737		0.532
5	0.417	632.587	3.177		0.295
6	0.500	759.104	1.753		0.163
7	0.583	885.621	1.046		0.097
		Sum =	100.000	Sum=	9.272

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time	Pattern	Storm Rain	Loss rate(In./Hr)	Effecti

U n i t H y d r o g r a p h A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

EDMA 1 - 100YR PRE-DEVELOPMENT VOLUME

Drainage Area = 9.20(Ac.) = 0.014 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 9.20(Ac.) = 0.014 Sq. Mi.
Length along longest watercourse = 748.00(Ft.)
Length along longest watercourse measured to centroid = 375.00(Ft.)
Length along longest watercourse = 0.142 Mi.
Length along longest watercourse measured to centroid = 0.071 Mi.
Difference in elevation = 4.20(Ft.)
Slope along watercourse = 29.6471 Ft./Mi.

```
Average Manning's 'N' = 0.030
Lag time =    0.066 Hr.
Lag time =     3.95 Min.
25% of lag time =     0.99 Min.
40% of lag time =     1.58 Min.
Unit time =     5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        9.20              0.86                  7.95

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        9.20              2.25                 20.70

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.864(In)
Area Averaged 100-Year Rainfall =    2.250(In)

Point rain (area averaged) =    2.250(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.250(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     9.200           78.50         1.000
 Total Area Entered =      9.20(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
78.5  78.5      0.262     1.000        0.026       1.000      0.026
```

Sum (F) = 0.026

Area averaged mean soil loss (F) (In/Hr) = 0.026
Minimum soil loss rate ((In/Hr)) = 0.013
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	126.517	27.057	2.509
2	0.167	253.035	48.463	4.493
3	0.250	379.552	12.767	1.184
4	0.333	506.069	5.737	0.532
5	0.417	632.587	3.177	0.295
6	0.500	759.104	1.753	0.163
7	0.583	885.621	1.046	0.097
		Sum = 100.000	Sum=	9.272

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.351	0.026	(0.316)	0.325
2	0.17	1.30	0.351	0.026	(0.316)	0.325
3	0.25	1.10	0.297	0.026	(0.267)	0.271
4	0.33	1.50	0.405	0.026	(0.364)	0.379
5	0.42	1.50	0.405	0.026	(0.364)	0.379
6	0.50	1.80	0.486	0.026	(0.437)	0.460
7	0.58	1.50	0.405	0.026	(0.364)	0.379

```
 8   0.67     1.80      0.486          0.026    (  0.437)         0.460
 9   0.75     1.80      0.486          0.026    (  0.437)         0.460
10   0.83     1.50      0.405          0.026    (  0.364)         0.379
11   0.92     1.60      0.432          0.026    (  0.389)         0.406
12   1.00     1.80      0.486          0.026    (  0.437)         0.460
13   1.08     2.20      0.594          0.026    (  0.535)         0.568
14   1.17     2.20      0.594          0.026    (  0.535)         0.568
15   1.25     2.20      0.594          0.026    (  0.535)         0.568
16   1.33     2.00      0.540          0.026    (  0.486)         0.514
17   1.42     2.60      0.702          0.026    (  0.632)         0.676
18   1.50     2.70      0.729          0.026    (  0.656)         0.703
19   1.58     2.40      0.648          0.026    (  0.583)         0.622
20   1.67     2.70      0.729          0.026    (  0.656)         0.703
21   1.75     3.30      0.891          0.026    (  0.802)         0.865
22   1.83     3.10      0.837          0.026    (  0.753)         0.811
23   1.92     2.90      0.783          0.026    (  0.705)         0.757
24   2.00     3.00      0.810          0.026    (  0.729)         0.784
25   2.08     3.10      0.837          0.026    (  0.753)         0.811
26   2.17     4.20      1.134          0.026    (  1.021)         1.108
27   2.25     5.00      1.350          0.026    (  1.215)         1.324
28   2.33     3.50      0.945          0.026    (  0.850)         0.919
29   2.42     6.80      1.836          0.026    (  1.652)         1.810
30   2.50     7.30      1.971          0.026    (  1.774)         1.945
31   2.58     8.20      2.214          0.026    (  1.993)         2.188
32   2.67     5.90      1.593          0.026    (  1.434)         1.567
33   2.75     2.00      0.540          0.026    (  0.486)         0.514
34   2.83     1.80      0.486          0.026    (  0.437)         0.460
35   2.92     1.80      0.486          0.026    (  0.437)         0.460
36   3.00     0.60      0.162          0.026    (  0.146)         0.136
          (Loss Rate Not Used)
   Sum =     100.0                                    Sum =    26.1
    Flood volume = Effective rainfall      2.17(In)
     times area       9.2(Ac.)/[(In)/(Ft.)] =       1.7(Ac.Ft)
    Total soil loss =      0.08(In)
    Total soil loss =     0.060(Ac.Ft)
    Total rainfall =      2.25(In)
    Flood volume =       72516.1 Cubic Feet
    Total soil loss =        2621.9 Cubic Feet
```

Peak flow rate of this hydrograph = 17.628(CFS)

3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0 5.0 10.0 15.0 20.0
0+ 5	0.0056	0.82	VQ
0+10	0.0213	2.28	V Q
0+15	0.0387	2.52	V Q
0+20	0.0574	2.73	|V Q
0+25	0.0798	3.24	|V Q
0+30	0.1046	3.60	| V Q |

U n i t H y d r o g r a p h A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

EDMA 1 - 100YR PRE-DEVELOPMENT VOLUME

Drainage Area = 9.20(Ac.) = 0.014 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 9.20(Ac.) = 0.014 Sq. Mi.
Length along longest watercourse = 748.00(Ft.)
Length along longest watercourse measured to centroid = 375.00(Ft.)
Length along longest watercourse = 0.142 Mi.
Length along longest watercourse measured to centroid = 0.071 Mi.
Difference in elevation = 4.20(Ft.)
Slope along watercourse = 29.6471 Ft./Mi.

```
Average Manning's 'N' = 0.030
Lag time =    0.066 Hr.
Lag time =     3.95 Min.
25% of lag time =     0.99 Min.
40% of lag time =     1.58 Min.
Unit time =     5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        9.20             1.20                 11.04

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        9.20             2.99                 27.51

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.200(In)
Area Averaged 100-Year Rainfall =    2.990(In)

Point rain (area averaged) =    2.990(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.990(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     9.200           78.50          1.000
 Total Area Entered =      9.20(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
78.5  78.5      0.262     1.000        0.026       1.000      0.026
```

Sum (F) = 0.026

Area averaged mean soil loss (F) (In/Hr) = 0.026
Minimum soil loss rate ((In/Hr)) = 0.013
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	126.517	27.057	2.509
2	0.167	253.035	48.463	4.493
3	0.250	379.552	12.767	1.184
4	0.333	506.069	5.737	0.532
5	0.417	632.587	3.177	0.295
6	0.500	759.104	1.753	0.163
7	0.583	885.621	1.046	0.097
		Sum = 100.000	Sum=	9.272

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.179	0.026	(0.161)	0.153
2	0.17	0.60	0.215	0.026	(0.194)	0.189
3	0.25	0.60	0.215	0.026	(0.194)	0.189
4	0.33	0.60	0.215	0.026	(0.194)	0.189
5	0.42	0.60	0.215	0.026	(0.194)	0.189
6	0.50	0.70	0.251	0.026	(0.226)	0.225
7	0.58	0.70	0.251	0.026	(0.226)	0.225

8	0.67	0.70	0.251	0.026	(0.226)	0.225
9	0.75	0.70	0.251	0.026	(0.226)	0.225
10	0.83	0.70	0.251	0.026	(0.226)	0.225
11	0.92	0.70	0.251	0.026	(0.226)	0.225
12	1.00	0.80	0.287	0.026	(0.258)	0.261
13	1.08	0.80	0.287	0.026	(0.258)	0.261
14	1.17	0.80	0.287	0.026	(0.258)	0.261
15	1.25	0.80	0.287	0.026	(0.258)	0.261
16	1.33	0.80	0.287	0.026	(0.258)	0.261
17	1.42	0.80	0.287	0.026	(0.258)	0.261
18	1.50	0.80	0.287	0.026	(0.258)	0.261
19	1.58	0.80	0.287	0.026	(0.258)	0.261
20	1.67	0.80	0.287	0.026	(0.258)	0.261
21	1.75	0.80	0.287	0.026	(0.258)	0.261
22	1.83	0.80	0.287	0.026	(0.258)	0.261
23	1.92	0.80	0.287	0.026	(0.258)	0.261
24	2.00	0.90	0.323	0.026	(0.291)	0.297
25	2.08	0.80	0.287	0.026	(0.258)	0.261
26	2.17	0.90	0.323	0.026	(0.291)	0.297
27	2.25	0.90	0.323	0.026	(0.291)	0.297
28	2.33	0.90	0.323	0.026	(0.291)	0.297
29	2.42	0.90	0.323	0.026	(0.291)	0.297
30	2.50	0.90	0.323	0.026	(0.291)	0.297
31	2.58	0.90	0.323	0.026	(0.291)	0.297
32	2.67	0.90	0.323	0.026	(0.291)	0.297
33	2.75	1.00	0.359	0.026	(0.323)	0.333
34	2.83	1.00	0.359	0.026	(0.323)	0.333
35	2.92	1.00	0.359	0.026	(0.323)	0.333
36	3.00	1.00	0.359	0.026	(0.323)	0.333
37	3.08	1.00	0.359	0.026	(0.323)	0.333
38	3.17	1.10	0.395	0.026	(0.355)	0.368
39	3.25	1.10	0.395	0.026	(0.355)	0.368
40	3.33	1.10	0.395	0.026	(0.355)	0.368
41	3.42	1.20	0.431	0.026	(0.387)	0.404
42	3.50	1.30	0.466	0.026	(0.420)	0.440
43	3.58	1.40	0.502	0.026	(0.452)	0.476
44	3.67	1.40	0.502	0.026	(0.452)	0.476
45	3.75	1.50	0.538	0.026	(0.484)	0.512

```
46   3.83     1.50      0.538          0.026    (  0.484)         0.512
47   3.92     1.60      0.574          0.026    (  0.517)         0.548
48   4.00     1.60      0.574          0.026    (  0.517)         0.548
49   4.08     1.70      0.610          0.026    (  0.549)         0.584
50   4.17     1.80      0.646          0.026    (  0.581)         0.620
51   4.25     1.90      0.682          0.026    (  0.614)         0.656
52   4.33     2.00      0.718          0.026    (  0.646)         0.691
53   4.42     2.10      0.753          0.026    (  0.678)         0.727
54   4.50     2.10      0.753          0.026    (  0.678)         0.727
55   4.58     2.20      0.789          0.026    (  0.710)         0.763
56   4.67     2.30      0.825          0.026    (  0.743)         0.799
57   4.75     2.40      0.861          0.026    (  0.775)         0.835
58   4.83     2.40      0.861          0.026    (  0.775)         0.835
59   4.92     2.50      0.897          0.026    (  0.807)         0.871
60   5.00     2.60      0.933          0.026    (  0.840)         0.907
61   5.08     3.10      1.112          0.026    (  1.001)         1.086
62   5.17     3.60      1.292          0.026    (  1.162)         1.265
63   5.25     3.90      1.399          0.026    (  1.259)         1.373
64   5.33     4.20      1.507          0.026    (  1.356)         1.481
65   5.42     4.70      1.686          0.026    (  1.518)         1.660
66   5.50     5.60      2.009          0.026    (  1.808)         1.983
67   5.58     1.90      0.682          0.026    (  0.614)         0.656
68   5.67     0.90      0.323          0.026    (  0.291)         0.297
69   5.75     0.60      0.215          0.026    (  0.194)         0.189
70   5.83     0.50      0.179          0.026    (  0.161)         0.153
71   5.92     0.30      0.108          0.026    (  0.097)         0.081
72   6.00     0.20      0.072          0.026    (  0.065)         0.046
          (Loss Rate Not Used)
   Sum =     100.0                                    Sum =    34.0
    Flood volume = Effective rainfall      2.83(In)
     times area       9.2(Ac.)/[(In)/(Ft.)] =       2.2(Ac.Ft)
    Total soil loss =      0.16(In)
    Total soil loss =     0.120(Ac.Ft)
    Total rainfall =      2.99(In)
    Flood volume =       94607.0 Cubic Feet
    Total soil loss =        5243.8 Cubic Feet
    ---------------------------------------------------------------
     Peak flow rate of this hydrograph =     15.563(CFS)
```

6 - H O U R S T O R M

R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	5.0	10.0	15.0	20.0
0+ 5	0.0026	0.38	Q				
0+10	0.0107	1.16	V Q				
0+15	0.0210	1.51	V Q				
0+20	0.0323	1.63	V Q				
0+25	0.0439	1.69	V Q				
0+30	0.0565	1.82	V Q				
0+35	0.0703	2.00	V Q				
0+40	0.0844	2.05	V Q				
0+45	0.0986	2.07	V Q				
0+50	0.1129	2.08	V Q				
0+55	0.1273	2.08	V Q				
1+ 0	0.1423	2.18	V Q				
1+ 5	0.1584	2.34	V Q				
1+10	0.1748	2.38	VQ				
1+15	0.1913	2.40	VQ				
1+20	0.2079	2.41	VQ				
1+25	0.2245	2.42	Q				
1+30	0.2412	2.42	Q				
1+35	0.2579	2.42	Q				
1+40	0.2745	2.42	QV				
1+45	0.2912	2.42	QV				
1+50	0.3079	2.42	QV				
1+55	0.3245	2.42	QV				
2+ 0	0.3418	2.51	QV				
2+ 5	0.3596	2.58	QV				
2+10	0.3772	2.55	QV				
2+15	0.3957	2.69	Q V				
2+20	0.4145	2.72	Q V				

2+25	0.4333	2.74	Q V				
2+30	0.4522	2.75	Q V				
2+35	0.4712	2.75	Q V				
2+40	0.4901	2.75	Q V				
2+45	0.5097	2.84	Q V				
2+50	0.5304	3.00	Q V				
2+55	0.5514	3.05	Q V				
3+ 0	0.5725	3.07	Q V				
3+ 5	0.5937	3.08	Q V				
3+10	0.6155	3.17	Q V				
3+15	0.6385	3.34	Q V				
3+20	0.6618	3.38	Q V				
3+25	0.6858	3.49	Q V				
3+30	0.7116	3.75	Q V				
3+35	0.7395	4.05	Q V				
3+40	0.7690	4.28	Q V				
3+45	0.7996	4.44	Q V				
3+50	0.8315	4.64	Q V				
3+55	0.8645	4.79	Q V				
4+ 0	0.8987	4.98	Q V				
4+ 5	0.9340	5.12	Q V				
4+10	0.9712	5.40	Q V				
4+15	1.0105	5.71	Q V				
4+20	1.0521	6.03	Q V				
4+25	1.0958	6.35	Q V				
4+30	1.1412	6.59	Q V				
4+35	1.1878	6.77	Q V				
4+40	1.2364	7.06	Q V				
4+45	1.2872	7.37	Q V				
4+50	1.3395	7.60	Q V				
4+55	1.3930	7.77	Q V				
5+ 0	1.4485	8.05	Q V				
5+ 5	1.5086	8.73	Q V				
5+10	1.5778	10.06	Q V				
5+15	1.6562	11.38	Q V				
5+20	1.7420	12.46	Q V				
5+25	1.8362	13.68	Q V				
5+30	1.9434	15.56	Q V				

```
    5+35       2.0400     14.03  |          |          |        Q |       V  |
    5+40       2.0931      7.71  |          |    Q     |          |        V |
    5+45       2.1241      4.50  |         Q|          |          |          V|
    5+50       2.1443      2.93  |     Q    |          |          |          V|
    5+55       2.1577      1.95  |   Q      |          |          |          V|
    6+ 0       2.1656      1.15  | Q        |          |          |          V|
    6+ 5       2.1694      0.55  |Q         |          |          |          V|
    6+10       2.1708      0.20  Q          |          |          |          V|
    6+15       2.1715      0.09  Q          |          |          |          V|
    6+20       2.1717      0.04  Q          |          |          |          V|
    6+25       2.1718      0.02  Q          |          |          |          V|
    6+30       2.1719      0.00  Q          |          |          |           V
-------------------------------------------------------------------
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U n i t H y d r o g r a p h A n a l y s i s

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Study date 01/04/23 File: VOLEDMA1AND224100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

EDMA 1 - 100YR PRE-DEVELOPMENT VOLUME

Drainage Area = 9.20(Ac.) = 0.014 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 9.20(Ac.) = 0.014 Sq. Mi.
Length along longest watercourse = 748.00(Ft.)
Length along longest watercourse measured to centroid = 375.00(Ft.)
Length along longest watercourse = 0.142 Mi.
Length along longest watercourse measured to centroid = 0.071 Mi.
Difference in elevation = 4.20(Ft.)
Slope along watercourse = 29.6471 Ft./Mi.

```
Average Manning's 'N' = 0.030
Lag time =    0.066 Hr.
Lag time =     3.95 Min.
25% of lag time =     0.99 Min.
40% of lag time =     1.58 Min.
Unit time =     5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        9.20              2.06                 18.95

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        9.20              5.39                 49.59

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    2.060(In)
Area Averaged 100-Year Rainfall =    5.390(In)

Point rain (area averaged) =    5.390(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    5.390(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     9.200           78.50          1.000
 Total Area Entered =      9.20(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
78.5  78.5      0.262     1.000        0.026       1.000      0.026
```

Sum (F) = 0.026

Area averaged mean soil loss (F) (In/Hr) = 0.026
Minimum soil loss rate ((In/Hr)) = 0.013
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %		Unit Hydrograph (CFS)
1	0.083	126.517	27.057		2.509
2	0.167	253.035	48.463		4.493
3	0.250	379.552	12.767		1.184
4	0.333	506.069	5.737		0.532
5	0.417	632.587	3.177		0.295
6	0.500	759.104	1.753		0.163
7	0.583	885.621	1.046		0.097
			Sum = 100.000	Sum=	9.272

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max		Low	Effective (In/Hr)
1	0.08	0.07	0.043	(0.046)		0.039	0.004
2	0.17	0.07	0.043	(0.046)		0.039	0.004
3	0.25	0.07	0.043	(0.046)		0.039	0.004
4	0.33	0.10	0.065	0.046	(	0.058)	0.019
5	0.42	0.10	0.065	0.046	(	0.058)	0.019
6	0.50	0.10	0.065	0.045	(	0.058)	0.019
7	0.58	0.10	0.065	0.045	(	0.058)	0.019

8	0.67	0.10	0.065	0.045	(0.058)	0.020
9	0.75	0.10	0.065	0.045	(0.058)	0.020
10	0.83	0.13	0.086	0.045	(0.078)	0.041
11	0.92	0.13	0.086	0.045	(0.078)	0.042
12	1.00	0.13	0.086	0.044	(0.078)	0.042
13	1.08	0.10	0.065	0.044	(0.058)	0.020
14	1.17	0.10	0.065	0.044	(0.058)	0.021
15	1.25	0.10	0.065	0.044	(0.058)	0.021
16	1.33	0.10	0.065	0.044	(0.058)	0.021
17	1.42	0.10	0.065	0.044	(0.058)	0.021
18	1.50	0.10	0.065	0.043	(0.058)	0.021
19	1.58	0.10	0.065	0.043	(0.058)	0.021
20	1.67	0.10	0.065	0.043	(0.058)	0.022
21	1.75	0.10	0.065	0.043	(0.058)	0.022
22	1.83	0.13	0.086	0.043	(0.078)	0.044
23	1.92	0.13	0.086	0.043	(0.078)	0.044
24	2.00	0.13	0.086	0.042	(0.078)	0.044
25	2.08	0.13	0.086	0.042	(0.078)	0.044
26	2.17	0.13	0.086	0.042	(0.078)	0.044
27	2.25	0.13	0.086	0.042	(0.078)	0.044
28	2.33	0.13	0.086	0.042	(0.078)	0.045
29	2.42	0.13	0.086	0.042	(0.078)	0.045
30	2.50	0.13	0.086	0.041	(0.078)	0.045
31	2.58	0.17	0.108	0.041	(0.097)	0.067
32	2.67	0.17	0.108	0.041	(0.097)	0.067
33	2.75	0.17	0.108	0.041	(0.097)	0.067
34	2.83	0.17	0.108	0.041	(0.097)	0.067
35	2.92	0.17	0.108	0.040	(0.097)	0.067
36	3.00	0.17	0.108	0.040	(0.097)	0.067
37	3.08	0.17	0.108	0.040	(0.097)	0.068
38	3.17	0.17	0.108	0.040	(0.097)	0.068
39	3.25	0.17	0.108	0.040	(0.097)	0.068
40	3.33	0.17	0.108	0.040	(0.097)	0.068
41	3.42	0.17	0.108	0.039	(0.097)	0.068
42	3.50	0.17	0.108	0.039	(0.097)	0.068
43	3.58	0.17	0.108	0.039	(0.097)	0.069
44	3.67	0.17	0.108	0.039	(0.097)	0.069
45	3.75	0.17	0.108	0.039	(0.097)	0.069

46	3.83	0.20	0.129	0.039	(0.116)	0.091
47	3.92	0.20	0.129	0.039	(0.116)	0.091
48	4.00	0.20	0.129	0.038	(0.116)	0.091
49	4.08	0.20	0.129	0.038	(0.116)	0.091
50	4.17	0.20	0.129	0.038	(0.116)	0.091
51	4.25	0.20	0.129	0.038	(0.116)	0.092
52	4.33	0.23	0.151	0.038	(0.136)	0.113
53	4.42	0.23	0.151	0.038	(0.136)	0.113
54	4.50	0.23	0.151	0.037	(0.136)	0.114
55	4.58	0.23	0.151	0.037	(0.136)	0.114
56	4.67	0.23	0.151	0.037	(0.136)	0.114
57	4.75	0.23	0.151	0.037	(0.136)	0.114
58	4.83	0.27	0.172	0.037	(0.155)	0.136
59	4.92	0.27	0.172	0.037	(0.155)	0.136
60	5.00	0.27	0.172	0.036	(0.155)	0.136
61	5.08	0.20	0.129	0.036	(0.116)	0.093
62	5.17	0.20	0.129	0.036	(0.116)	0.093
63	5.25	0.20	0.129	0.036	(0.116)	0.093
64	5.33	0.23	0.151	0.036	(0.136)	0.115
65	5.42	0.23	0.151	0.036	(0.136)	0.115
66	5.50	0.23	0.151	0.035	(0.136)	0.115
67	5.58	0.27	0.172	0.035	(0.155)	0.137
68	5.67	0.27	0.172	0.035	(0.155)	0.137
69	5.75	0.27	0.172	0.035	(0.155)	0.137
70	5.83	0.27	0.172	0.035	(0.155)	0.138
71	5.92	0.27	0.172	0.035	(0.155)	0.138
72	6.00	0.27	0.172	0.035	(0.155)	0.138
73	6.08	0.30	0.194	0.034	(0.175)	0.160
74	6.17	0.30	0.194	0.034	(0.175)	0.160
75	6.25	0.30	0.194	0.034	(0.175)	0.160
76	6.33	0.30	0.194	0.034	(0.175)	0.160
77	6.42	0.30	0.194	0.034	(0.175)	0.160
78	6.50	0.30	0.194	0.034	(0.175)	0.160
79	6.58	0.33	0.216	0.033	(0.194)	0.182
80	6.67	0.33	0.216	0.033	(0.194)	0.182
81	6.75	0.33	0.216	0.033	(0.194)	0.182
82	6.83	0.33	0.216	0.033	(0.194)	0.183
83	6.92	0.33	0.216	0.033	(0.194)	0.183

84	7.00	0.33	0.216	0.033	(0.194)	0.183
85	7.08	0.33	0.216	0.033	(0.194)	0.183
86	7.17	0.33	0.216	0.032	(0.194)	0.183
87	7.25	0.33	0.216	0.032	(0.194)	0.183
88	7.33	0.37	0.237	0.032	(0.213)	0.205
89	7.42	0.37	0.237	0.032	(0.213)	0.205
90	7.50	0.37	0.237	0.032	(0.213)	0.205
91	7.58	0.40	0.259	0.032	(0.233)	0.227
92	7.67	0.40	0.259	0.032	(0.233)	0.227
93	7.75	0.40	0.259	0.031	(0.233)	0.227
94	7.83	0.43	0.280	0.031	(0.252)	0.249
95	7.92	0.43	0.280	0.031	(0.252)	0.249
96	8.00	0.43	0.280	0.031	(0.252)	0.249
97	8.08	0.50	0.323	0.031	(0.291)	0.293
98	8.17	0.50	0.323	0.031	(0.291)	0.293
99	8.25	0.50	0.323	0.031	(0.291)	0.293
100	8.33	0.50	0.323	0.030	(0.291)	0.293
101	8.42	0.50	0.323	0.030	(0.291)	0.293
102	8.50	0.50	0.323	0.030	(0.291)	0.293
103	8.58	0.53	0.345	0.030	(0.310)	0.315
104	8.67	0.53	0.345	0.030	(0.310)	0.315
105	8.75	0.53	0.345	0.030	(0.310)	0.315
106	8.83	0.57	0.367	0.030	(0.330)	0.337
107	8.92	0.57	0.367	0.029	(0.330)	0.337
108	9.00	0.57	0.367	0.029	(0.330)	0.337
109	9.08	0.63	0.410	0.029	(0.369)	0.380
110	9.17	0.63	0.410	0.029	(0.369)	0.381
111	9.25	0.63	0.410	0.029	(0.369)	0.381
112	9.33	0.67	0.431	0.029	(0.388)	0.402
113	9.42	0.67	0.431	0.029	(0.388)	0.403
114	9.50	0.67	0.431	0.028	(0.388)	0.403
115	9.58	0.70	0.453	0.028	(0.407)	0.424
116	9.67	0.70	0.453	0.028	(0.407)	0.425
117	9.75	0.70	0.453	0.028	(0.407)	0.425
118	9.83	0.73	0.474	0.028	(0.427)	0.446
119	9.92	0.73	0.474	0.028	(0.427)	0.447
120	10.00	0.73	0.474	0.028	(0.427)	0.447
121	10.08	0.50	0.323	0.028	(0.291)	0.296

122	10.17	0.50	0.323	0.027	(0.291)	0.296
123	10.25	0.50	0.323	0.027	(0.291)	0.296
124	10.33	0.50	0.323	0.027	(0.291)	0.296
125	10.42	0.50	0.323	0.027	(0.291)	0.296
126	10.50	0.50	0.323	0.027	(0.291)	0.297
127	10.58	0.67	0.431	0.027	(0.388)	0.404
128	10.67	0.67	0.431	0.027	(0.388)	0.405
129	10.75	0.67	0.431	0.026	(0.388)	0.405
130	10.83	0.67	0.431	0.026	(0.388)	0.405
131	10.92	0.67	0.431	0.026	(0.388)	0.405
132	11.00	0.67	0.431	0.026	(0.388)	0.405
133	11.08	0.63	0.410	0.026	(0.369)	0.384
134	11.17	0.63	0.410	0.026	(0.369)	0.384
135	11.25	0.63	0.410	0.026	(0.369)	0.384
136	11.33	0.63	0.410	0.026	(0.369)	0.384
137	11.42	0.63	0.410	0.025	(0.369)	0.384
138	11.50	0.63	0.410	0.025	(0.369)	0.384
139	11.58	0.57	0.367	0.025	(0.330)	0.341
140	11.67	0.57	0.367	0.025	(0.330)	0.341
141	11.75	0.57	0.367	0.025	(0.330)	0.342
142	11.83	0.60	0.388	0.025	(0.349)	0.363
143	11.92	0.60	0.388	0.025	(0.349)	0.363
144	12.00	0.60	0.388	0.025	(0.349)	0.364
145	12.08	0.83	0.539	0.024	(0.485)	0.515
146	12.17	0.83	0.539	0.024	(0.485)	0.515
147	12.25	0.83	0.539	0.024	(0.485)	0.515
148	12.33	0.87	0.561	0.024	(0.504)	0.536
149	12.42	0.87	0.561	0.024	(0.504)	0.537
150	12.50	0.87	0.561	0.024	(0.504)	0.537
151	12.58	0.93	0.604	0.024	(0.543)	0.580
152	12.67	0.93	0.604	0.024	(0.543)	0.580
153	12.75	0.93	0.604	0.023	(0.543)	0.580
154	12.83	0.97	0.625	0.023	(0.563)	0.602
155	12.92	0.97	0.625	0.023	(0.563)	0.602
156	13.00	0.97	0.625	0.023	(0.563)	0.602
157	13.08	1.13	0.733	0.023	(0.660)	0.710
158	13.17	1.13	0.733	0.023	(0.660)	0.710
159	13.25	1.13	0.733	0.023	(0.660)	0.710

160	13.33	1.13	0.733	0.023	(0.660)	0.710
161	13.42	1.13	0.733	0.023	(0.660)	0.710
162	13.50	1.13	0.733	0.022	(0.660)	0.711
163	13.58	0.77	0.496	0.022	(0.446)	0.474
164	13.67	0.77	0.496	0.022	(0.446)	0.474
165	13.75	0.77	0.496	0.022	(0.446)	0.474
166	13.83	0.77	0.496	0.022	(0.446)	0.474
167	13.92	0.77	0.496	0.022	(0.446)	0.474
168	14.00	0.77	0.496	0.022	(0.446)	0.474
169	14.08	0.90	0.582	0.022	(0.524)	0.560
170	14.17	0.90	0.582	0.022	(0.524)	0.561
171	14.25	0.90	0.582	0.021	(0.524)	0.561
172	14.33	0.87	0.561	0.021	(0.504)	0.539
173	14.42	0.87	0.561	0.021	(0.504)	0.539
174	14.50	0.87	0.561	0.021	(0.504)	0.539
175	14.58	0.87	0.561	0.021	(0.504)	0.540
176	14.67	0.87	0.561	0.021	(0.504)	0.540
177	14.75	0.87	0.561	0.021	(0.504)	0.540
178	14.83	0.83	0.539	0.021	(0.485)	0.518
179	14.92	0.83	0.539	0.021	(0.485)	0.518
180	15.00	0.83	0.539	0.020	(0.485)	0.519
181	15.08	0.80	0.517	0.020	(0.466)	0.497
182	15.17	0.80	0.517	0.020	(0.466)	0.497
183	15.25	0.80	0.517	0.020	(0.466)	0.497
184	15.33	0.77	0.496	0.020	(0.446)	0.476
185	15.42	0.77	0.496	0.020	(0.446)	0.476
186	15.50	0.77	0.496	0.020	(0.446)	0.476
187	15.58	0.63	0.410	0.020	(0.369)	0.390
188	15.67	0.63	0.410	0.020	(0.369)	0.390
189	15.75	0.63	0.410	0.020	(0.369)	0.390
190	15.83	0.63	0.410	0.019	(0.369)	0.390
191	15.92	0.63	0.410	0.019	(0.369)	0.390
192	16.00	0.63	0.410	0.019	(0.369)	0.390
193	16.08	0.13	0.086	0.019	(0.078)	0.067
194	16.17	0.13	0.086	0.019	(0.078)	0.067
195	16.25	0.13	0.086	0.019	(0.078)	0.067
196	16.33	0.13	0.086	0.019	(0.078)	0.067
197	16.42	0.13	0.086	0.019	(0.078)	0.068

198	16.50	0.13	0.086	0.019	(0.078)	0.068
199	16.58	0.10	0.065	0.019	(0.058)	0.046
200	16.67	0.10	0.065	0.018	(0.058)	0.046
201	16.75	0.10	0.065	0.018	(0.058)	0.046
202	16.83	0.10	0.065	0.018	(0.058)	0.046
203	16.92	0.10	0.065	0.018	(0.058)	0.047
204	17.00	0.10	0.065	0.018	(0.058)	0.047
205	17.08	0.17	0.108	0.018	(0.097)	0.090
206	17.17	0.17	0.108	0.018	(0.097)	0.090
207	17.25	0.17	0.108	0.018	(0.097)	0.090
208	17.33	0.17	0.108	0.018	(0.097)	0.090
209	17.42	0.17	0.108	0.018	(0.097)	0.090
210	17.50	0.17	0.108	0.018	(0.097)	0.090
211	17.58	0.17	0.108	0.017	(0.097)	0.090
212	17.67	0.17	0.108	0.017	(0.097)	0.090
213	17.75	0.17	0.108	0.017	(0.097)	0.091
214	17.83	0.13	0.086	0.017	(0.078)	0.069
215	17.92	0.13	0.086	0.017	(0.078)	0.069
216	18.00	0.13	0.086	0.017	(0.078)	0.069
217	18.08	0.13	0.086	0.017	(0.078)	0.069
218	18.17	0.13	0.086	0.017	(0.078)	0.069
219	18.25	0.13	0.086	0.017	(0.078)	0.069
220	18.33	0.13	0.086	0.017	(0.078)	0.070
221	18.42	0.13	0.086	0.017	(0.078)	0.070
222	18.50	0.13	0.086	0.017	(0.078)	0.070
223	18.58	0.10	0.065	0.016	(0.058)	0.048
224	18.67	0.10	0.065	0.016	(0.058)	0.048
225	18.75	0.10	0.065	0.016	(0.058)	0.048
226	18.83	0.07	0.043	0.016	(0.039)	0.027
227	18.92	0.07	0.043	0.016	(0.039)	0.027
228	19.00	0.07	0.043	0.016	(0.039)	0.027
229	19.08	0.10	0.065	0.016	(0.058)	0.049
230	19.17	0.10	0.065	0.016	(0.058)	0.049
231	19.25	0.10	0.065	0.016	(0.058)	0.049
232	19.33	0.13	0.086	0.016	(0.078)	0.070
233	19.42	0.13	0.086	0.016	(0.078)	0.071
234	19.50	0.13	0.086	0.016	(0.078)	0.071
235	19.58	0.10	0.065	0.016	(0.058)	0.049

236	19.67	0.10	0.065	0.015	(0.058)	0.049
237	19.75	0.10	0.065	0.015	(0.058)	0.049
238	19.83	0.07	0.043	0.015	(0.039)	0.028
239	19.92	0.07	0.043	0.015	(0.039)	0.028
240	20.00	0.07	0.043	0.015	(0.039)	0.028
241	20.08	0.10	0.065	0.015	(0.058)	0.050
242	20.17	0.10	0.065	0.015	(0.058)	0.050
243	20.25	0.10	0.065	0.015	(0.058)	0.050
244	20.33	0.10	0.065	0.015	(0.058)	0.050
245	20.42	0.10	0.065	0.015	(0.058)	0.050
246	20.50	0.10	0.065	0.015	(0.058)	0.050
247	20.58	0.10	0.065	0.015	(0.058)	0.050
248	20.67	0.10	0.065	0.015	(0.058)	0.050
249	20.75	0.10	0.065	0.015	(0.058)	0.050
250	20.83	0.07	0.043	0.015	(0.039)	0.029
251	20.92	0.07	0.043	0.015	(0.039)	0.029
252	21.00	0.07	0.043	0.014	(0.039)	0.029
253	21.08	0.10	0.065	0.014	(0.058)	0.050
254	21.17	0.10	0.065	0.014	(0.058)	0.050
255	21.25	0.10	0.065	0.014	(0.058)	0.050
256	21.33	0.07	0.043	0.014	(0.039)	0.029
257	21.42	0.07	0.043	0.014	(0.039)	0.029
258	21.50	0.07	0.043	0.014	(0.039)	0.029
259	21.58	0.10	0.065	0.014	(0.058)	0.051
260	21.67	0.10	0.065	0.014	(0.058)	0.051
261	21.75	0.10	0.065	0.014	(0.058)	0.051
262	21.83	0.07	0.043	0.014	(0.039)	0.029
263	21.92	0.07	0.043	0.014	(0.039)	0.029
264	22.00	0.07	0.043	0.014	(0.039)	0.029
265	22.08	0.10	0.065	0.014	(0.058)	0.051
266	22.17	0.10	0.065	0.014	(0.058)	0.051
267	22.25	0.10	0.065	0.014	(0.058)	0.051
268	22.33	0.07	0.043	0.014	(0.039)	0.029
269	22.42	0.07	0.043	0.014	(0.039)	0.030
270	22.50	0.07	0.043	0.014	(0.039)	0.030
271	22.58	0.07	0.043	0.014	(0.039)	0.030
272	22.67	0.07	0.043	0.013	(0.039)	0.030
273	22.75	0.07	0.043	0.013	(0.039)	0.030

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274  22.83     0.07      0.043          0.013    (  0.039)         0.030
275  22.92     0.07      0.043          0.013    (  0.039)         0.030
276  23.00     0.07      0.043          0.013    (  0.039)         0.030
277  23.08     0.07      0.043          0.013    (  0.039)         0.030
278  23.17     0.07      0.043          0.013    (  0.039)         0.030
279  23.25     0.07      0.043          0.013    (  0.039)         0.030
280  23.33     0.07      0.043          0.013    (  0.039)         0.030
281  23.42     0.07      0.043          0.013    (  0.039)         0.030
282  23.50     0.07      0.043          0.013    (  0.039)         0.030
283  23.58     0.07      0.043          0.013    (  0.039)         0.030
284  23.67     0.07      0.043          0.013    (  0.039)         0.030
285  23.75     0.07      0.043          0.013    (  0.039)         0.030
286  23.83     0.07      0.043          0.013    (  0.039)         0.030
287  23.92     0.07      0.043          0.013    (  0.039)         0.030
288  24.00     0.07      0.043          0.013    (  0.039)         0.030
            (Loss Rate Not Used)
    Sum =     100.0                                    Sum =    57.2
     Flood volume = Effective rainfall      4.76(In)
      times area       9.2(Ac.)/[(In)/(Ft.)] =       3.7(Ac.Ft)
     Total soil loss =      0.63(In)
     Total soil loss =     0.480(Ac.Ft)
     Total rainfall =      5.39(In)
     Flood volume =       159078.2 Cubic Feet
     Total soil loss =       20923.0 Cubic Feet
     ---------------------------------------------------------------------
      Peak flow rate of this hydrograph =      6.580(CFS)
     ---------------------------------------------------------------------
     +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                         24 - H O U R    S T O R M
                    R u n o f f      H y d r o g r a p h
     ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

     ---------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
 ---------------------------------------------------------------------
   0+ 5       0.0001      0.01  Q         |         |         |         |
   0+10       0.0003      0.03  Q         |         |         |         |
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0+15	0.0005	0.04	Q	|	|	|	|
0+20	0.0010	0.07	Q	|	|	|	|
0+25	0.0020	0.14	Q	|	|	|	|
0+30	0.0031	0.16	Q	|	|	|	|
0+35	0.0043	0.17	Q	|	|	|	|
0+40	0.0055	0.18	Q	|	|	|	|
0+45	0.0067	0.18	Q	|	|	|	|
0+50	0.0084	0.24	Q	|	|	|	|
0+55	0.0107	0.34	VQ	|	|	|	|
1+ 0	0.0132	0.36	VQ	|	|	|	|
1+ 5	0.0154	0.32	VQ	|	|	|	|
1+10	0.0170	0.23	Q	|	|	|	|
1+15	0.0184	0.21	Q	|	|	|	|
1+20	0.0198	0.20	Q	|	|	|	|
1+25	0.0212	0.20	Q	|	|	|	|
1+30	0.0226	0.20	Q	|	|	|	|
1+35	0.0239	0.20	Q	|	|	|	|
1+40	0.0253	0.20	Q	|	|	|	|
1+45	0.0267	0.20	Q	|	|	|	|
1+50	0.0284	0.26	VQ	|	|	|	|
1+55	0.0309	0.35	VQ	|	|	|	|
2+ 0	0.0335	0.38	VQ	|	|	|	|
2+ 5	0.0362	0.39	VQ	|	|	|	|
2+10	0.0390	0.40	VQ	|	|	|	|
2+15	0.0418	0.41	VQ	|	|	|	|
2+20	0.0447	0.41	VQ	|	|	|	|
2+25	0.0475	0.41	VQ	|	|	|	|
2+30	0.0504	0.41	VQ	|	|	|	|
2+35	0.0536	0.47	VQ	|	|	|	|
2+40	0.0575	0.57	V Q	|	|	|	|
2+45	0.0616	0.60	V Q	|	|	|	|
2+50	0.0658	0.61	V Q	|	|	|	|
2+55	0.0701	0.62	V Q	|	|	|	|
3+ 0	0.0743	0.62	V Q	|	|	|	|
3+ 5	0.0787	0.63	V Q	|	|	|	|
3+10	0.0830	0.63	V Q	|	|	|	|
3+15	0.0873	0.63	V Q	|	|	|	|
3+20	0.0916	0.63	|VQ	|	|	|	|

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3+25       0.0960      0.63  |VQ       |          |          |          |
3+30       0.1004      0.63  |VQ       |          |          |          |
3+35       0.1047      0.63  |VQ       |          |          |          |
3+40       0.1091      0.64  |VQ       |          |          |          |
3+45       0.1135      0.64  |VQ       |          |          |          |
3+50       0.1183      0.69  |VQ       |          |          |          |
3+55       0.1237      0.79  |V Q      |          |          |          |
4+ 0       0.1294      0.82  |V Q      |          |          |          |
4+ 5       0.1351      0.83  |V Q      |          |          |          |
4+10       0.1409      0.84  |V Q      |          |          |          |
4+15       0.1467      0.84  |V Q      |          |          |          |
4+20       0.1529      0.90  |V Q      |          |          |          |
4+25       0.1598      1.00  |V  Q     |          |          |          |
4+30       0.1669      1.03  |V  Q     |          |          |          |
4+35       0.1741      1.04  |V  Q     |          |          |          |
4+40       0.1813      1.05  |V  Q     |          |          |          |
4+45       0.1886      1.05  | V Q     |          |          |          |
4+50       0.1962      1.11  | V Q     |          |          |          |
4+55       0.2046      1.21  | V Q     |          |          |          |
5+ 0       0.2131      1.24  | V Q     |          |          |          |
5+ 5       0.2209      1.14  | V Q     |          |          |          |
5+10       0.2275      0.96  | VQ      |          |          |          |
5+15       0.2338      0.91  | VQ      |          |          |          |
5+20       0.2403      0.94  | VQ      |          |          |          |
5+25       0.2474      1.03  | V Q     |          |          |          |
5+30       0.2546      1.05  | V Q     |          |          |          |
5+35       0.2623      1.11  | V Q     |          |          |          |
5+40       0.2707      1.22  | V Q     |          |          |          |
5+45       0.2793      1.25  |  VQ     |          |          |          |
5+50       0.2880      1.26  |  V Q    |          |          |          |
5+55       0.2967      1.27  |  V Q    |          |          |          |
6+ 0       0.3055      1.28  |  V Q    |          |          |          |
6+ 5       0.3147      1.33  |  V Q    |          |          |          |
6+10       0.3245      1.43  |  V Q    |          |          |          |
6+15       0.3346      1.46  |  V Q    |          |          |          |
6+20       0.3447      1.47  |  V Q    |          |          |          |
6+25       0.3549      1.48  |  V Q    |          |          |          |
6+30       0.3651      1.48  |  V Q    |          |          |          |
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6+35	0.3757	1.54	V Q			
6+40	0.3870	1.64	V Q			
6+45	0.3985	1.67	V Q			
6+50	0.4101	1.68	V Q			
6+55	0.4217	1.69	V Q			
7+ 0	0.4334	1.69	V Q			
7+ 5	0.4451	1.70	V Q			
7+10	0.4567	1.70	VQ			
7+15	0.4684	1.70	VQ			
7+20	0.4805	1.75	V Q			
7+25	0.4933	1.85	V Q			
7+30	0.5062	1.88	V Q			
7+35	0.5196	1.95	V Q			
7+40	0.5338	2.05	V Q			
7+45	0.5481	2.08	V Q			
7+50	0.5629	2.15	V Q			
7+55	0.5784	2.26	V Q			
8+ 0	0.5942	2.29	V Q			
8+ 5	0.6108	2.41	V Q			
8+10	0.6288	2.61	V Q			
8+15	0.6471	2.67	V Q			
8+20	0.6657	2.69	V Q			
8+25	0.6843	2.71	V Q			
8+30	0.7030	2.71	V Q			
8+35	0.7221	2.77	V Q			
8+40	0.7419	2.87	V Q			
8+45	0.7619	2.90	V Q			
8+50	0.7823	2.97	V Q			
8+55	0.8034	3.07	V Q			
9+ 0	0.8248	3.10	V Q			
9+ 5	0.8470	3.22	V Q			
9+10	0.8706	3.43	V Q			
9+15	0.8946	3.48	V Q			
9+20	0.9191	3.56	V Q			
9+25	0.9444	3.67	V Q			
9+30	0.9699	3.71	V Q			
9+35	0.9960	3.78	V Q			
9+40	1.0227	3.88	V Q			

9+45	1.0497	3.91	|	|V Q |	|	|
9+50	1.0771	3.98	|	|V Q |	|	|
9+55	1.1052	4.09	|	| V Q |	|	|
10+ 0	1.1336	4.12	|	| V Q |	|	|
10+ 5	1.1594	3.75	|	| V Q |	|	|
10+10	1.1806	3.08	|	| Q |	|	|
10+15	1.2007	2.91	|	|Q V |	|	|
10+20	1.2202	2.83	|	|Q V |	|	|
10+25	1.2394	2.79	|	|Q V |	|	|
10+30	1.2584	2.76	|	|Q V |	|	|
10+35	1.2792	3.02	|	| Q V |	|	|
10+40	1.3034	3.51	|	| Q |	|	|
10+45	1.3284	3.64	|	| Q |	|	|
10+50	1.3538	3.69	|	| Q |	|	|
10+55	1.3795	3.73	|	| QV |	|	|
11+ 0	1.4053	3.75	|	| QV |	|	|
11+ 5	1.4308	3.70	|	| QV |	|	|
11+10	1.4557	3.61	|	| QV |	|	|
11+15	1.4804	3.58	|	| Q V |	|	|
11+20	1.5050	3.57	|	| Q V |	|	|
11+25	1.5295	3.57	|	| Q V |	|	|
11+30	1.5541	3.57	|	| Q V |	|	|
11+35	1.5779	3.46	|	| Q V |	|	|
11+40	1.6004	3.26	|	| Q V |	|	|
11+45	1.6225	3.21	|	| Q V |	|	|
11+50	1.6449	3.25	|	| Q V |	|	|
11+55	1.6678	3.33	|	| Q V |	|	|
12+ 0	1.6909	3.35	|	| Q V |	|	|
12+ 5	1.7167	3.74	|	| Q V |	|	|
12+10	1.7471	4.42	|	| Q V|	|	|
12+15	1.7789	4.61	|	| QV|	|	|
12+20	1.8116	4.75	|	| QV|	|	|
12+25	1.8452	4.89	|	| QV |	|	|
12+30	1.8793	4.94	|	| QV |	|	|
12+35	1.9142	5.08	|	| Q |	|	|
12+40	1.9505	5.28	|	| |Q |	|	|
12+45	1.9873	5.33	|	| |Q |	|	|
12+50	2.0245	5.41	|	| |QV |	|	|

12+55	2.0626	5.52			Q			
13+ 0	2.1009	5.56			QV			
13+ 5	2.1411	5.84			Q			
13+10	2.1847	6.34			V Q			
13+15	2.2293	6.47			VQ			
13+20	2.2743	6.53			V Q			
13+25	2.3194	6.56			VQ			
13+30	2.3648	6.58			VQ			
13+35	2.4061	6.00			Q V			
13+40	2.4400	4.93		Q	V			
13+45	2.4721	4.65		Q	V			
13+50	2.5032	4.53		Q	V			
13+55	2.5339	4.46		Q	V			
14+ 0	2.5644	4.42		Q	V			
14+ 5	2.5962	4.61		Q	V			
14+10	2.6306	5.00		Q	V			
14+15	2.6658	5.11		Q	V			
14+20	2.7009	5.10		Q	V			
14+25	2.7355	5.03		Q	V			
14+30	2.7701	5.02		Q	V			
14+35	2.8046	5.02		Q	V			
14+40	2.8392	5.01		Q	V			
14+45	2.8737	5.01		Q	V			
14+50	2.9078	4.95		Q	V			
14+55	2.9412	4.86		Q	V			
15+ 0	2.9745	4.83		Q	V			
15+ 5	3.0073	4.77		Q	V			
15+10	3.0395	4.67		Q	V			
15+15	3.0714	4.64		Q	V			
15+20	3.1029	4.57		Q	V			
15+25	3.1337	4.47		Q	V			
15+30	3.1642	4.44		Q	V			
15+35	3.1933	4.21		Q	V			
15+40	3.2196	3.82		Q	V			
15+45	3.2451	3.71		Q	V			
15+50	3.2704	3.67		Q	V			
15+55	3.2955	3.64		Q	V			
16+ 0	3.3205	3.63		Q	V			

```
16+ 5       3.3398      2.81  |          |Q         |          |      V   |
16+10       3.3492      1.36  |     Q    |          |          |      V   |
16+15       3.3559      0.97  |   Q      |          |          |      V   |
16+20       3.3614      0.80  |   Q      |          |          |      V   |
16+25       3.3663      0.71  | Q        |          |          |      V   |
16+30       3.3708      0.66  | Q        |          |          |      V   |
16+35       3.3748      0.57  | Q        |          |          |      V   |
16+40       3.3780      0.48  |Q         |          |          |       V  |
16+45       3.3812      0.45  |Q         |          |          |       V  |
16+50       3.3842      0.44  |Q         |          |          |       V  |
16+55       3.3872      0.44  |Q         |          |          |       V  |
17+ 0       3.3902      0.43  |Q         |          |          |       V  |
17+ 5       3.3939      0.54  | Q        |          |          |       V  |
17+10       3.3990      0.74  | Q        |          |          |       V  |
17+15       3.4044      0.79  |   Q      |          |          |       V  |
17+20       3.4100      0.81  |   Q      |          |          |       V  |
17+25       3.4156      0.82  |   Q      |          |          |       V  |
17+30       3.4214      0.83  |   Q      |          |          |       V  |
17+35       3.4271      0.84  |   Q      |          |          |       V  |
17+40       3.4329      0.84  |   Q      |          |          |       V  |
17+45       3.4387      0.84  |   Q      |          |          |       V  |
17+50       3.4441      0.79  |   Q      |          |          |       V  |
17+55       3.4488      0.69  | Q        |          |          |       V  |
18+ 0       3.4534      0.66  | Q        |          |          |       V  |
18+ 5       3.4579      0.65  | Q        |          |          |       V  |
18+10       3.4624      0.65  | Q        |          |          |       V  |
18+15       3.4668      0.65  | Q        |          |          |       V  |
18+20       3.4713      0.64  | Q        |          |          |        V |
18+25       3.4757      0.65  | Q        |          |          |        V |
18+30       3.4802      0.65  | Q        |          |          |        V |
18+35       3.4842      0.59  | Q        |          |          |        V |
18+40       3.4877      0.50  |Q         |          |          |        V |
18+45       3.4909      0.47  |Q         |          |          |        V |
18+50       3.4937      0.41  |Q         |          |          |        V |
18+55       3.4958      0.30  |Q         |          |          |        V |
19+ 0       3.4977      0.28  |Q         |          |          |        V |
19+ 5       3.4999      0.32  |Q         |          |          |        V |
19+10       3.5027      0.41  |Q         |          |          |        V |
```

19+15	3.5057	0.43	Q			V
19+20	3.5091	0.50	Q			V
19+25	3.5132	0.60	Q			V
19+30	3.5175	0.63	Q			V
19+35	3.5216	0.59	Q			V
19+40	3.5250	0.50	Q			V
19+45	3.5283	0.48	Q			V
19+50	3.5312	0.41	Q			V
19+55	3.5333	0.31	Q			V
20+ 0	3.5353	0.28	Q			V
20+ 5	3.5375	0.32	Q			V
20+10	3.5404	0.42	Q			V
20+15	3.5434	0.44	Q			V
20+20	3.5465	0.45	Q			V
20+25	3.5496	0.46	Q			V
20+30	3.5528	0.46	Q			V
20+35	3.5560	0.46	Q			V
20+40	3.5592	0.46	Q			V
20+45	3.5624	0.46	Q			V
20+50	3.5652	0.41	Q			V
20+55	3.5674	0.31	Q			V
21+ 0	3.5693	0.29	Q			V
21+ 5	3.5716	0.33	Q			V
21+10	3.5745	0.42	Q			V
21+15	3.5776	0.45	Q			V
21+20	3.5804	0.40	Q			V
21+25	3.5825	0.31	Q			V
21+30	3.5845	0.29	Q			V
21+35	3.5868	0.34	Q			V
21+40	3.5898	0.43	Q			V
21+45	3.5929	0.45	Q			V
21+50	3.5956	0.40	Q			V
21+55	3.5978	0.31	Q			V
22+ 0	3.5998	0.29	Q			V
22+ 5	3.6021	0.34	Q			V
22+10	3.6051	0.43	Q			V
22+15	3.6082	0.45	Q			V
22+20	3.6110	0.41	Q			V

```
   22+25       3.6132      0.32  |Q        |         |         |         V|
   22+30       3.6152      0.30  |Q        |         |         |         V|
   22+35       3.6172      0.29  |Q        |         |         |         V|
   22+40       3.6191      0.28  |Q        |         |         |         V|
   22+45       3.6210      0.28  |Q        |         |         |         V|
   22+50       3.6229      0.28  |Q        |         |         |         V|
   22+55       3.6248      0.28  |Q        |         |         |         V|
   23+ 0       3.6267      0.28  |Q        |         |         |         V|
   23+ 5       3.6286      0.28  |Q        |         |         |         V|
   23+10       3.6305      0.28  |Q        |         |         |         V|
   23+15       3.6324      0.28  |Q        |         |         |         V|
   23+20       3.6343      0.28  |Q        |         |         |         V|
   23+25       3.6362      0.28  |Q        |         |         |         V|
   23+30       3.6382      0.28  |Q        |         |         |         V|
   23+35       3.6401      0.28  |Q        |         |         |         V|
   23+40       3.6420      0.28  |Q        |         |         |         V|
   23+45       3.6439      0.28  |Q        |         |         |         V|
   23+50       3.6458      0.28  |Q        |         |         |         V|
   23+55       3.6477      0.28  |Q        |         |         |         V|
   24+ 0       3.6497      0.28  |Q        |         |         |         V|
   24+ 5       3.6511      0.20  Q         |         |         |         V|
   24+10       3.6515      0.07  Q         |         |         |         V|
   24+15       3.6517      0.03  Q         |         |         |         V|
   24+20       3.6519      0.02  Q         |         |         |         V|
   24+25       3.6519      0.01  Q         |         |         |         V|
   24+30       3.6519      0.00  Q         |         |         |          V
-------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

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Study date 01/04/23 File: EDMA21100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

EDMA 2 - 100YR VOLUME PRE-DEVELOPMENT

Drainage Area = 8.66(Ac.) = 0.014 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 8.66(Ac.) = 0.014 Sq. Mi.
Length along longest watercourse = 631.00(Ft.)
Length along longest watercourse measured to centroid = 315.00(Ft.)
Length along longest watercourse = 0.120 Mi.
Length along longest watercourse measured to centroid = 0.060 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 8.3677 Ft./Mi.

```
Average Manning's 'N' = 0.030
Lag time =    0.073 Hr.
Lag time =     4.41 Min.
25% of lag time =     1.10 Min.
40% of lag time =     1.76 Min.
Unit time =     5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow =    14.29(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        8.66              0.51                  4.45

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        8.66              1.61                 13.94

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.514(In)
Area Averaged 100-Year Rainfall =    1.610(In)

Point rain (area averaged) =    1.610(In)
Areal adjustment factor =   99.99 %
Adjusted average point rain =    1.610(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     8.660           78.50          1.000
 Total Area Entered =      8.66(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
78.5  78.5      0.262     1.000        0.026        1.000      0.026
```

Sum (F) = 0.026

Area averaged mean soil loss (F) (In/Hr) = 0.026
Minimum soil loss rate ((In/Hr)) = 0.013
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

Slope of intensity-duration curve for a 1 hour storm =0.5500

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	113.400	23.257	2.030
2	0.167	226.800	48.846	4.263
3	0.250	340.201	13.932	1.216
4	0.333	453.601	6.371	0.556
5	0.417	567.001	3.541	0.309
6	0.500	680.401	2.151	0.188
7	0.583	793.801	1.275	0.111
8	0.667	907.201	0.629	0.055
		Sum =	100.000 Sum=	8.728

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time

U n i t H y d r o g r a p h A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

EDMA 2 - 100YR VOLUME PRE-DEVELOPMENT

Drainage Area = 8.66(Ac.) = 0.014 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 8.66(Ac.) = 0.014 Sq. Mi.
Length along longest watercourse = 631.00(Ft.)
Length along longest watercourse measured to centroid = 315.00(Ft.)
Length along longest watercourse = 0.120 Mi.
Length along longest watercourse measured to centroid = 0.060 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 8.3677 Ft./Mi.

```
Average Manning's 'N' = 0.030
Lag time =    0.073 Hr.
Lag time =     4.41 Min.
25% of lag time =     1.10 Min.
40% of lag time =     1.76 Min.
Unit time =     5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =    14.29(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        8.66              0.86                  7.48

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        8.66              2.25                 19.48

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.864(In)
Area Averaged 100-Year Rainfall =    2.250(In)

Point rain (area averaged) =    2.250(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.250(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     8.660           78.50         1.000
 Total Area Entered =      8.66(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
78.5  78.5      0.262     1.000        0.026       1.000      0.026
```

Sum (F) = 0.026

Area averaged mean soil loss (F) (In/Hr) = 0.026
Minimum soil loss rate ((In/Hr)) = 0.013
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	113.400	23.257	2.030
2	0.167	226.800	48.846	4.263
3	0.250	340.201	13.932	1.216
4	0.333	453.601	6.371	0.556
5	0.417	567.001	3.541	0.309
6	0.500	680.401	2.151	0.188
7	0.583	793.801	1.275	0.111
8	0.667	907.201	0.629	0.055
		Sum = 100.000	Sum=	8.728

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.351	0.026	(0.316)	0.325
2	0.17	1.30	0.351	0.026	(0.316)	0.325
3	0.25	1.10	0.297	0.026	(0.267)	0.271
4	0.33	1.50	0.405	0.026	(0.364)	0.379
5	0.42	1.50	0.405	0.026	(0.364)	0.379
6	0.50	1.80	0.486	0.026	(0.437)	0.460

```
 7   0.58     1.50      0.405          0.026    (  0.364)         0.379
 8   0.67     1.80      0.486          0.026    (  0.437)         0.460
 9   0.75     1.80      0.486          0.026    (  0.437)         0.460
10   0.83     1.50      0.405          0.026    (  0.364)         0.379
11   0.92     1.60      0.432          0.026    (  0.389)         0.406
12   1.00     1.80      0.486          0.026    (  0.437)         0.460
13   1.08     2.20      0.594          0.026    (  0.535)         0.568
14   1.17     2.20      0.594          0.026    (  0.535)         0.568
15   1.25     2.20      0.594          0.026    (  0.535)         0.568
16   1.33     2.00      0.540          0.026    (  0.486)         0.514
17   1.42     2.60      0.702          0.026    (  0.632)         0.676
18   1.50     2.70      0.729          0.026    (  0.656)         0.703
19   1.58     2.40      0.648          0.026    (  0.583)         0.622
20   1.67     2.70      0.729          0.026    (  0.656)         0.703
21   1.75     3.30      0.891          0.026    (  0.802)         0.865
22   1.83     3.10      0.837          0.026    (  0.753)         0.811
23   1.92     2.90      0.783          0.026    (  0.705)         0.757
24   2.00     3.00      0.810          0.026    (  0.729)         0.784
25   2.08     3.10      0.837          0.026    (  0.753)         0.811
26   2.17     4.20      1.134          0.026    (  1.021)         1.108
27   2.25     5.00      1.350          0.026    (  1.215)         1.324
28   2.33     3.50      0.945          0.026    (  0.850)         0.919
29   2.42     6.80      1.836          0.026    (  1.652)         1.810
30   2.50     7.30      1.971          0.026    (  1.774)         1.945
31   2.58     8.20      2.214          0.026    (  1.993)         2.188
32   2.67     5.90      1.593          0.026    (  1.434)         1.567
33   2.75     2.00      0.540          0.026    (  0.486)         0.514
34   2.83     1.80      0.486          0.026    (  0.437)         0.460
35   2.92     1.80      0.486          0.026    (  0.437)         0.460
36   3.00     0.60      0.162          0.026    (  0.146)         0.136
          (Loss Rate Not Used)
   Sum =     100.0                                  Sum =    26.1
    Flood volume = Effective rainfall      2.17(In)
     times area       8.7(Ac.)/[(In)/(Ft.)] =       1.6(Ac.Ft)
    Total soil loss =      0.08(In)
    Total soil loss =     0.057(Ac.Ft)
    Total rainfall =      2.25(In)
    Flood volume =       68259.8 Cubic Feet
```

Total soil loss = 2468.0 Cubic Feet

Peak flow rate of this hydrograph = 30.871(CFS)

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3 - H O U R S T O R M

R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	10.0	20.0	30.0	40.0
0+ 5	0.1029	14.94	V	Q			
0+10	0.2154	16.33	V	Q			
0+15	0.3298	16.62	V	Q			
0+20	0.4454	16.79	V	Q			
0+25	0.5644	17.28	V	Q			

U n i t H y d r o g r a p h A n a l y s i s

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Study date 01/04/23 File: EDMA26100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

EDMA 2 - 100YR VOLUME PRE-DEVELOPMENT

Drainage Area = 8.66(Ac.) = 0.014 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 8.66(Ac.) = 0.014 Sq. Mi.
Length along longest watercourse = 631.00(Ft.)
Length along longest watercourse measured to centroid = 315.00(Ft.)
Length along longest watercourse = 0.120 Mi.
Length along longest watercourse measured to centroid = 0.060 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 8.3677 Ft./Mi.

```
Average Manning's 'N' = 0.030
Lag time =    0.073 Hr.
Lag time =     4.41 Min.
25% of lag time =     1.10 Min.
40% of lag time =     1.76 Min.
Unit time =     5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow =    14.29(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        8.66             1.20                 10.39

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        8.66             2.99                 25.89

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.200(In)
Area Averaged 100-Year Rainfall =    2.990(In)

Point rain (area averaged) =    2.990(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.990(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     8.660           78.50         1.000
 Total Area Entered =      8.66(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
78.5  78.5      0.262     1.000        0.026       1.000      0.026
```

Sum (F) = 0.026

Area averaged mean soil loss (F) (In/Hr) = 0.026
Minimum soil loss rate ((In/Hr)) = 0.013
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	113.400	23.257	2.030
2	0.167	226.800	48.846	4.263
3	0.250	340.201	13.932	1.216
4	0.333	453.601	6.371	0.556
5	0.417	567.001	3.541	0.309
6	0.500	680.401	2.151	0.188
7	0.583	793.801	1.275	0.111
8	0.667	907.201	0.629	0.055
			Sum = 100.000 Sum=	8.728

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max		Low	Effective (In/Hr)
1	0.08	0.50	0.179	0.026	(	0.161)	0.153
2	0.17	0.60	0.215	0.026	(	0.194)	0.189
3	0.25	0.60	0.215	0.026	(	0.194)	0.189
4	0.33	0.60	0.215	0.026	(	0.194)	0.189
5	0.42	0.60	0.215	0.026	(	0.194)	0.189
6	0.50	0.70	0.251	0.026	(	0.226)	0.225

7	0.58	0.70	0.251	0.026	(0.226)	0.225
8	0.67	0.70	0.251	0.026	(0.226)	0.225
9	0.75	0.70	0.251	0.026	(0.226)	0.225
10	0.83	0.70	0.251	0.026	(0.226)	0.225
11	0.92	0.70	0.251	0.026	(0.226)	0.225
12	1.00	0.80	0.287	0.026	(0.258)	0.261
13	1.08	0.80	0.287	0.026	(0.258)	0.261
14	1.17	0.80	0.287	0.026	(0.258)	0.261
15	1.25	0.80	0.287	0.026	(0.258)	0.261
16	1.33	0.80	0.287	0.026	(0.258)	0.261
17	1.42	0.80	0.287	0.026	(0.258)	0.261
18	1.50	0.80	0.287	0.026	(0.258)	0.261
19	1.58	0.80	0.287	0.026	(0.258)	0.261
20	1.67	0.80	0.287	0.026	(0.258)	0.261
21	1.75	0.80	0.287	0.026	(0.258)	0.261
22	1.83	0.80	0.287	0.026	(0.258)	0.261
23	1.92	0.80	0.287	0.026	(0.258)	0.261
24	2.00	0.90	0.323	0.026	(0.291)	0.297
25	2.08	0.80	0.287	0.026	(0.258)	0.261
26	2.17	0.90	0.323	0.026	(0.291)	0.297
27	2.25	0.90	0.323	0.026	(0.291)	0.297
28	2.33	0.90	0.323	0.026	(0.291)	0.297
29	2.42	0.90	0.323	0.026	(0.291)	0.297
30	2.50	0.90	0.323	0.026	(0.291)	0.297
31	2.58	0.90	0.323	0.026	(0.291)	0.297
32	2.67	0.90	0.323	0.026	(0.291)	0.297
33	2.75	1.00	0.359	0.026	(0.323)	0.333
34	2.83	1.00	0.359	0.026	(0.323)	0.333
35	2.92	1.00	0.359	0.026	(0.323)	0.333
36	3.00	1.00	0.359	0.026	(0.323)	0.333
37	3.08	1.00	0.359	0.026	(0.323)	0.333
38	3.17	1.10	0.395	0.026	(0.355)	0.368
39	3.25	1.10	0.395	0.026	(0.355)	0.368
40	3.33	1.10	0.395	0.026	(0.355)	0.368
41	3.42	1.20	0.431	0.026	(0.387)	0.404
42	3.50	1.30	0.466	0.026	(0.420)	0.440
43	3.58	1.40	0.502	0.026	(0.452)	0.476
44	3.67	1.40	0.502	0.026	(0.452)	0.476

```
45   3.75     1.50      0.538          0.026    (  0.484)         0.512
46   3.83     1.50      0.538          0.026    (  0.484)         0.512
47   3.92     1.60      0.574          0.026    (  0.517)         0.548
48   4.00     1.60      0.574          0.026    (  0.517)         0.548
49   4.08     1.70      0.610          0.026    (  0.549)         0.584
50   4.17     1.80      0.646          0.026    (  0.581)         0.620
51   4.25     1.90      0.682          0.026    (  0.614)         0.656
52   4.33     2.00      0.718          0.026    (  0.646)         0.691
53   4.42     2.10      0.753          0.026    (  0.678)         0.727
54   4.50     2.10      0.753          0.026    (  0.678)         0.727
55   4.58     2.20      0.789          0.026    (  0.710)         0.763
56   4.67     2.30      0.825          0.026    (  0.743)         0.799
57   4.75     2.40      0.861          0.026    (  0.775)         0.835
58   4.83     2.40      0.861          0.026    (  0.775)         0.835
59   4.92     2.50      0.897          0.026    (  0.807)         0.871
60   5.00     2.60      0.933          0.026    (  0.840)         0.907
61   5.08     3.10      1.112          0.026    (  1.001)         1.086
62   5.17     3.60      1.292          0.026    (  1.162)         1.265
63   5.25     3.90      1.399          0.026    (  1.259)         1.373
64   5.33     4.20      1.507          0.026    (  1.356)         1.481
65   5.42     4.70      1.686          0.026    (  1.518)         1.660
66   5.50     5.60      2.009          0.026    (  1.808)         1.983
67   5.58     1.90      0.682          0.026    (  0.614)         0.656
68   5.67     0.90      0.323          0.026    (  0.291)         0.297
69   5.75     0.60      0.215          0.026    (  0.194)         0.189
70   5.83     0.50      0.179          0.026    (  0.161)         0.153
71   5.92     0.30      0.108          0.026    (  0.097)         0.081
72   6.00     0.20      0.072          0.026    (  0.065)         0.046
          (Loss Rate Not Used)
   Sum =     100.0                                    Sum =    34.0
    Flood volume = Effective rainfall      2.83(In)
     times area       8.7(Ac.)/[(In)/(Ft.)] =       2.0(Ac.Ft)
    Total soil loss =      0.16(In)
    Total soil loss =     0.113(Ac.Ft)
    Total rainfall =      2.99(In)
    Flood volume =       89054.2 Cubic Feet
    Total soil loss =        4936.0 Cubic Feet
    ----------------------------------------------------------------
```

Peak flow rate of this hydrograph = 28.702(CFS)

6 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	7.5	15.0	22.5	30.0
0+ 5	0.1005	14.60	V	|	Q|	|	|
0+10	0.2061	15.32	V	|	Q	|	|
0+15	0.3139	15.66	|V	|	Q	|	|
0+20	0.4227	15.79	|V	|	|Q	|	|
0+25	0.5319	15.86	| V	|	|Q	|	|
0+30	0.6419	15.97	| V	|	|Q	|	|
0+35	0.7531	16.15	| V	|	|Q	|	|
0+40	0.8647	16.20	| V	|	|Q	|	|
0+45	0.9764	16.23	| V	|	|Q	|	|
0+50	1.0883	16.24	| V	|	|Q	|	|
0+55	1.2001	16.24	| V	|	|Q	|	|
1+ 0	1.3125	16.32	| V	|	|Q	|	|
1+ 5	1.4260	16.48	| V	|	|Q	|	|
1+10	1.5398	16.52	| V	|	| Q	|	|
1+15	1.6537	16.54	| V	|	| Q	|	|
1+20	1.7677	16.55	| V	|	| Q	|	|
1+25	1.8817	16.56	| V	|	| Q	|	|
1+30	1.9957	16.56	| V	|	| Q	|	|
1+35	2.1098	16.56	| V	|	| Q	|	|
1+40	2.2239	16.56	| V|	|	| Q	|	|
1+45	2.3379	16.56	| V|	|	| Q	|	|
1+50	2.4520	16.56	| V|	|	| Q	|	|
1+55	2.5661	16.56	| V	|	| Q	|	|
2+ 0	2.6807	16.64	| V	|	| Q	|	|
2+ 5	2.7958	16.72	| |V	|	| Q	|	|
2+10	2.9107	16.68	| |V	|	| Q	|	|
2+15	3.0264	16.81	| | V	|	| Q	|	|

2+20	3.1424	16.84		V	Q		
2+25	3.2585	16.86		V	Q		
2+30	3.3747	16.87		V	Q		
2+35	3.4909	16.87		V	Q		
2+40	3.6071	16.87		V	Q		
2+45	3.7238	16.95		V	Q		
2+50	3.8416	17.10		V	Q		
2+55	3.9597	17.15		V	Q		
3+ 0	4.0779	17.17		V	Q		
3+ 5	4.1962	17.18		V	Q		
3+10	4.3151	17.26		V	Q		
3+15	4.4350	17.41		V	Q		
3+20	4.5552	17.46		V	Q		
3+25	4.6761	17.55		V	Q		
3+30	4.7986	17.79		V	Q		
3+35	4.9230	18.07		V	Q		
3+40	5.0490	18.29		V	Q		
3+45	5.1759	18.44		V	Q		
3+50	5.3042	18.63		V	Q		
3+55	5.4335	18.76		V	Q		
4+ 0	5.5640	18.95		V	Q		
4+ 5	5.6954	19.08		V	Q		
4+10	5.8286	19.34		V	Q		
4+15	5.9637	19.62		V	Q		
4+20	6.1009	19.92		V	Q		
4+25	6.2402	20.23		VQ			
4+30	6.3811	20.46		VQ			
4+35	6.5232	20.62		VQ			
4+40	6.6670	20.89		Q			
4+45	6.8129	21.18		VQ			
4+50	6.9604	21.41		Q			
4+55	7.1089	21.57		Q			
5+ 0	7.2593	21.83		Q			
5+ 5	7.4136	22.41		QV			
5+10	7.5763	23.62		VQ			
5+15	7.7475	24.86		V Q			
5+20	7.9257	25.88		V Q			
5+25	8.1117	27.00		V Q			

5+30	8.3093	28.70	|	|	|	|	V	Q	|
5+35	8.5005	27.75	|	|	|	|	V	Q	|
5+40	8.6515	21.94	|	|	|	Q|	V		|
5+45	8.7813	18.85	|	|	|	Q	|	V		|
5+50	8.9004	17.29	|	|	|	Q	|	V		|
5+55	9.0130	16.34	|	|	|Q		|	V		|
6+ 0	9.1200	15.54	|	|	Q		|	V		|
6+ 5	9.2231	14.96	|	|	Q|		|	V		|
6+10	9.3232	14.54	|	|	Q|		|	V		|
6+15	9.4224	14.40	|	|	Q|		|		V	|
6+20	9.5211	14.34	|	|	Q|		|		V	|
6+25	9.6197	14.31	|	|	Q|		|			V|
6+30	9.7181	14.29	|	|	Q|		|			V|
6+3										

U n i t H y d r o g r a p h A n a l y s i s

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Study date 01/04/23 File: EDMA224100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

EDMA 2 - 100YR VOLUME PRE-DEVELOPMENT

Drainage Area = 8.66(Ac.) = 0.014 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 8.66(Ac.) = 0.014 Sq. Mi.
Length along longest watercourse = 631.00(Ft.)
Length along longest watercourse measured to centroid = 315.00(Ft.)
Length along longest watercourse = 0.120 Mi.
Length along longest watercourse measured to centroid = 0.060 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 8.3677 Ft./Mi.

```
Average Manning's 'N' = 0.030
Lag time =    0.073 Hr.
Lag time =     4.41 Min.
25% of lag time =     1.10 Min.
40% of lag time =     1.76 Min.
Unit time =     5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =    14.29(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        8.66             2.06                 17.84

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        8.66             5.39                 46.68

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    2.060(In)
Area Averaged 100-Year Rainfall =    5.390(In)

Point rain (area averaged) =    5.390(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    5.390(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     8.660           78.50         1.000
 Total Area Entered =      8.66(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
78.5  78.5      0.262     1.000        0.026       1.000      0.026
```

Sum (F) = 0.026

Area averaged mean soil loss (F) (In/Hr) = 0.026
Minimum soil loss rate ((In/Hr)) = 0.013
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	113.400	23.257	2.030
2	0.167	226.800	48.846	4.263
3	0.250	340.201	13.932	1.216
4	0.333	453.601	6.371	0.556
5	0.417	567.001	3.541	0.309
6	0.500	680.401	2.151	0.188
7	0.583	793.801	1.275	0.111
8	0.667	907.201	0.629	0.055
		Sum = 100.000	Sum=	8.728

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.043	(0.046)	0.039	0.004
2	0.17	0.07	0.043	(0.046)	0.039	0.004
3	0.25	0.07	0.043	(0.046)	0.039	0.004
4	0.33	0.10	0.065	0.046	(0.058)	0.019
5	0.42	0.10	0.065	0.046	(0.058)	0.019
6	0.50	0.10	0.065	0.045	(0.058)	0.019

7	0.58	0.10	0.065	0.045	(0.058)	0.019
8	0.67	0.10	0.065	0.045	(0.058)	0.020
9	0.75	0.10	0.065	0.045	(0.058)	0.020
10	0.83	0.13	0.086	0.045	(0.078)	0.041
11	0.92	0.13	0.086	0.045	(0.078)	0.042
12	1.00	0.13	0.086	0.044	(0.078)	0.042
13	1.08	0.10	0.065	0.044	(0.058)	0.020
14	1.17	0.10	0.065	0.044	(0.058)	0.021
15	1.25	0.10	0.065	0.044	(0.058)	0.021
16	1.33	0.10	0.065	0.044	(0.058)	0.021
17	1.42	0.10	0.065	0.044	(0.058)	0.021
18	1.50	0.10	0.065	0.043	(0.058)	0.021
19	1.58	0.10	0.065	0.043	(0.058)	0.021
20	1.67	0.10	0.065	0.043	(0.058)	0.022
21	1.75	0.10	0.065	0.043	(0.058)	0.022
22	1.83	0.13	0.086	0.043	(0.078)	0.044
23	1.92	0.13	0.086	0.043	(0.078)	0.044
24	2.00	0.13	0.086	0.042	(0.078)	0.044
25	2.08	0.13	0.086	0.042	(0.078)	0.044
26	2.17	0.13	0.086	0.042	(0.078)	0.044
27	2.25	0.13	0.086	0.042	(0.078)	0.044
28	2.33	0.13	0.086	0.042	(0.078)	0.045
29	2.42	0.13	0.086	0.042	(0.078)	0.045
30	2.50	0.13	0.086	0.041	(0.078)	0.045
31	2.58	0.17	0.108	0.041	(0.097)	0.067
32	2.67	0.17	0.108	0.041	(0.097)	0.067
33	2.75	0.17	0.108	0.041	(0.097)	0.067
34	2.83	0.17	0.108	0.041	(0.097)	0.067
35	2.92	0.17	0.108	0.040	(0.097)	0.067
36	3.00	0.17	0.108	0.040	(0.097)	0.067
37	3.08	0.17	0.108	0.040	(0.097)	0.068
38	3.17	0.17	0.108	0.040	(0.097)	0.068
39	3.25	0.17	0.108	0.040	(0.097)	0.068
40	3.33	0.17	0.108	0.040	(0.097)	0.068
41	3.42	0.17	0.108	0.039	(0.097)	0.068
42	3.50	0.17	0.108	0.039	(0.097)	0.068
43	3.58	0.17	0.108	0.039	(0.097)	0.069
44	3.67	0.17	0.108	0.039	(0.097)	0.069

45	3.75	0.17	0.108	0.039	(0.097)	0.069
46	3.83	0.20	0.129	0.039	(0.116)	0.091
47	3.92	0.20	0.129	0.039	(0.116)	0.091
48	4.00	0.20	0.129	0.038	(0.116)	0.091
49	4.08	0.20	0.129	0.038	(0.116)	0.091
50	4.17	0.20	0.129	0.038	(0.116)	0.091
51	4.25	0.20	0.129	0.038	(0.116)	0.092
52	4.33	0.23	0.151	0.038	(0.136)	0.113
53	4.42	0.23	0.151	0.038	(0.136)	0.113
54	4.50	0.23	0.151	0.037	(0.136)	0.114
55	4.58	0.23	0.151	0.037	(0.136)	0.114
56	4.67	0.23	0.151	0.037	(0.136)	0.114
57	4.75	0.23	0.151	0.037	(0.136)	0.114
58	4.83	0.27	0.172	0.037	(0.155)	0.136
59	4.92	0.27	0.172	0.037	(0.155)	0.136
60	5.00	0.27	0.172	0.036	(0.155)	0.136
61	5.08	0.20	0.129	0.036	(0.116)	0.093
62	5.17	0.20	0.129	0.036	(0.116)	0.093
63	5.25	0.20	0.129	0.036	(0.116)	0.093
64	5.33	0.23	0.151	0.036	(0.136)	0.115
65	5.42	0.23	0.151	0.036	(0.136)	0.115
66	5.50	0.23	0.151	0.035	(0.136)	0.115
67	5.58	0.27	0.172	0.035	(0.155)	0.137
68	5.67	0.27	0.172	0.035	(0.155)	0.137
69	5.75	0.27	0.172	0.035	(0.155)	0.137
70	5.83	0.27	0.172	0.035	(0.155)	0.138
71	5.92	0.27	0.172	0.035	(0.155)	0.138
72	6.00	0.27	0.172	0.035	(0.155)	0.138
73	6.08	0.30	0.194	0.034	(0.175)	0.160
74	6.17	0.30	0.194	0.034	(0.175)	0.160
75	6.25	0.30	0.194	0.034	(0.175)	0.160
76	6.33	0.30	0.194	0.034	(0.175)	0.160
77	6.42	0.30	0.194	0.034	(0.175)	0.160
78	6.50	0.30	0.194	0.034	(0.175)	0.160
79	6.58	0.33	0.216	0.033	(0.194)	0.182
80	6.67	0.33	0.216	0.033	(0.194)	0.182
81	6.75	0.33	0.216	0.033	(0.194)	0.182
82	6.83	0.33	0.216	0.033	(0.194)	0.183

83	6.92	0.33	0.216	0.033	(0.194)	0.183
84	7.00	0.33	0.216	0.033	(0.194)	0.183
85	7.08	0.33	0.216	0.033	(0.194)	0.183
86	7.17	0.33	0.216	0.032	(0.194)	0.183
87	7.25	0.33	0.216	0.032	(0.194)	0.183
88	7.33	0.37	0.237	0.032	(0.213)	0.205
89	7.42	0.37	0.237	0.032	(0.213)	0.205
90	7.50	0.37	0.237	0.032	(0.213)	0.205
91	7.58	0.40	0.259	0.032	(0.233)	0.227
92	7.67	0.40	0.259	0.032	(0.233)	0.227
93	7.75	0.40	0.259	0.031	(0.233)	0.227
94	7.83	0.43	0.280	0.031	(0.252)	0.249
95	7.92	0.43	0.280	0.031	(0.252)	0.249
96	8.00	0.43	0.280	0.031	(0.252)	0.249
97	8.08	0.50	0.323	0.031	(0.291)	0.293
98	8.17	0.50	0.323	0.031	(0.291)	0.293
99	8.25	0.50	0.323	0.031	(0.291)	0.293
100	8.33	0.50	0.323	0.030	(0.291)	0.293
101	8.42	0.50	0.323	0.030	(0.291)	0.293
102	8.50	0.50	0.323	0.030	(0.291)	0.293
103	8.58	0.53	0.345	0.030	(0.310)	0.315
104	8.67	0.53	0.345	0.030	(0.310)	0.315
105	8.75	0.53	0.345	0.030	(0.310)	0.315
106	8.83	0.57	0.367	0.030	(0.330)	0.337
107	8.92	0.57	0.367	0.029	(0.330)	0.337
108	9.00	0.57	0.367	0.029	(0.330)	0.337
109	9.08	0.63	0.410	0.029	(0.369)	0.380
110	9.17	0.63	0.410	0.029	(0.369)	0.381
111	9.25	0.63	0.410	0.029	(0.369)	0.381
112	9.33	0.67	0.431	0.029	(0.388)	0.402
113	9.42	0.67	0.431	0.029	(0.388)	0.403
114	9.50	0.67	0.431	0.028	(0.388)	0.403
115	9.58	0.70	0.453	0.028	(0.407)	0.424
116	9.67	0.70	0.453	0.028	(0.407)	0.425
117	9.75	0.70	0.453	0.028	(0.407)	0.425
118	9.83	0.73	0.474	0.028	(0.427)	0.446
119	9.92	0.73	0.474	0.028	(0.427)	0.447
120	10.00	0.73	0.474	0.028	(0.427)	0.447

121	10.08	0.50	0.323	0.028	(0.291)	0.296
122	10.17	0.50	0.323	0.027	(0.291)	0.296
123	10.25	0.50	0.323	0.027	(0.291)	0.296
124	10.33	0.50	0.323	0.027	(0.291)	0.296
125	10.42	0.50	0.323	0.027	(0.291)	0.296
126	10.50	0.50	0.323	0.027	(0.291)	0.297
127	10.58	0.67	0.431	0.027	(0.388)	0.404
128	10.67	0.67	0.431	0.027	(0.388)	0.405
129	10.75	0.67	0.431	0.026	(0.388)	0.405
130	10.83	0.67	0.431	0.026	(0.388)	0.405
131	10.92	0.67	0.431	0.026	(0.388)	0.405
132	11.00	0.67	0.431	0.026	(0.388)	0.405
133	11.08	0.63	0.410	0.026	(0.369)	0.384
134	11.17	0.63	0.410	0.026	(0.369)	0.384
135	11.25	0.63	0.410	0.026	(0.369)	0.384
136	11.33	0.63	0.410	0.026	(0.369)	0.384
137	11.42	0.63	0.410	0.025	(0.369)	0.384
138	11.50	0.63	0.410	0.025	(0.369)	0.384
139	11.58	0.57	0.367	0.025	(0.330)	0.341
140	11.67	0.57	0.367	0.025	(0.330)	0.341
141	11.75	0.57	0.367	0.025	(0.330)	0.342
142	11.83	0.60	0.388	0.025	(0.349)	0.363
143	11.92	0.60	0.388	0.025	(0.349)	0.363
144	12.00	0.60	0.388	0.025	(0.349)	0.364
145	12.08	0.83	0.539	0.024	(0.485)	0.515
146	12.17	0.83	0.539	0.024	(0.485)	0.515
147	12.25	0.83	0.539	0.024	(0.485)	0.515
148	12.33	0.87	0.561	0.024	(0.504)	0.536
149	12.42	0.87	0.561	0.024	(0.504)	0.537
150	12.50	0.87	0.561	0.024	(0.504)	0.537
151	12.58	0.93	0.604	0.024	(0.543)	0.580
152	12.67	0.93	0.604	0.024	(0.543)	0.580
153	12.75	0.93	0.604	0.023	(0.543)	0.580
154	12.83	0.97	0.625	0.023	(0.563)	0.602
155	12.92	0.97	0.625	0.023	(0.563)	0.602
156	13.00	0.97	0.625	0.023	(0.563)	0.602
157	13.08	1.13	0.733	0.023	(0.660)	0.710
158	13.17	1.13	0.733	0.023	(0.660)	0.710

159	13.25	1.13	0.733	0.023	(0.660)	0.710
160	13.33	1.13	0.733	0.023	(0.660)	0.710
161	13.42	1.13	0.733	0.023	(0.660)	0.710
162	13.50	1.13	0.733	0.022	(0.660)	0.711
163	13.58	0.77	0.496	0.022	(0.446)	0.474
164	13.67	0.77	0.496	0.022	(0.446)	0.474
165	13.75	0.77	0.496	0.022	(0.446)	0.474
166	13.83	0.77	0.496	0.022	(0.446)	0.474
167	13.92	0.77	0.496	0.022	(0.446)	0.474
168	14.00	0.77	0.496	0.022	(0.446)	0.474
169	14.08	0.90	0.582	0.022	(0.524)	0.560
170	14.17	0.90	0.582	0.022	(0.524)	0.561
171	14.25	0.90	0.582	0.021	(0.524)	0.561
172	14.33	0.87	0.561	0.021	(0.504)	0.539
173	14.42	0.87	0.561	0.021	(0.504)	0.539
174	14.50	0.87	0.561	0.021	(0.504)	0.539
175	14.58	0.87	0.561	0.021	(0.504)	0.540
176	14.67	0.87	0.561	0.021	(0.504)	0.540
177	14.75	0.87	0.561	0.021	(0.504)	0.540
178	14.83	0.83	0.539	0.021	(0.485)	0.518
179	14.92	0.83	0.539	0.021	(0.485)	0.518
180	15.00	0.83	0.539	0.020	(0.485)	0.519
181	15.08	0.80	0.517	0.020	(0.466)	0.497
182	15.17	0.80	0.517	0.020	(0.466)	0.497
183	15.25	0.80	0.517	0.020	(0.466)	0.497
184	15.33	0.77	0.496	0.020	(0.446)	0.476
185	15.42	0.77	0.496	0.020	(0.446)	0.476
186	15.50	0.77	0.496	0.020	(0.446)	0.476
187	15.58	0.63	0.410	0.020	(0.369)	0.390
188	15.67	0.63	0.410	0.020	(0.369)	0.390
189	15.75	0.63	0.410	0.020	(0.369)	0.390
190	15.83	0.63	0.410	0.019	(0.369)	0.390
191	15.92	0.63	0.410	0.019	(0.369)	0.390
192	16.00	0.63	0.410	0.019	(0.369)	0.390
193	16.08	0.13	0.086	0.019	(0.078)	0.067
194	16.17	0.13	0.086	0.019	(0.078)	0.067
195	16.25	0.13	0.086	0.019	(0.078)	0.067
196	16.33	0.13	0.086	0.019	(0.078)	0.067

197	16.42	0.13	0.086	0.019	(0.078)	0.068
198	16.50	0.13	0.086	0.019	(0.078)	0.068
199	16.58	0.10	0.065	0.019	(0.058)	0.046
200	16.67	0.10	0.065	0.018	(0.058)	0.046
201	16.75	0.10	0.065	0.018	(0.058)	0.046
202	16.83	0.10	0.065	0.018	(0.058)	0.046
203	16.92	0.10	0.065	0.018	(0.058)	0.047
204	17.00	0.10	0.065	0.018	(0.058)	0.047
205	17.08	0.17	0.108	0.018	(0.097)	0.090
206	17.17	0.17	0.108	0.018	(0.097)	0.090
207	17.25	0.17	0.108	0.018	(0.097)	0.090
208	17.33	0.17	0.108	0.018	(0.097)	0.090
209	17.42	0.17	0.108	0.018	(0.097)	0.090
210	17.50	0.17	0.108	0.018	(0.097)	0.090
211	17.58	0.17	0.108	0.017	(0.097)	0.090
212	17.67	0.17	0.108	0.017	(0.097)	0.090
213	17.75	0.17	0.108	0.017	(0.097)	0.091
214	17.83	0.13	0.086	0.017	(0.078)	0.069
215	17.92	0.13	0.086	0.017	(0.078)	0.069
216	18.00	0.13	0.086	0.017	(0.078)	0.069
217	18.08	0.13	0.086	0.017	(0.078)	0.069
218	18.17	0.13	0.086	0.017	(0.078)	0.069
219	18.25	0.13	0.086	0.017	(0.078)	0.069
220	18.33	0.13	0.086	0.017	(0.078)	0.070
221	18.42	0.13	0.086	0.017	(0.078)	0.070
222	18.50	0.13	0.086	0.017	(0.078)	0.070
223	18.58	0.10	0.065	0.016	(0.058)	0.048
224	18.67	0.10	0.065	0.016	(0.058)	0.048
225	18.75	0.10	0.065	0.016	(0.058)	0.048
226	18.83	0.07	0.043	0.016	(0.039)	0.027
227	18.92	0.07	0.043	0.016	(0.039)	0.027
228	19.00	0.07	0.043	0.016	(0.039)	0.027
229	19.08	0.10	0.065	0.016	(0.058)	0.049
230	19.17	0.10	0.065	0.016	(0.058)	0.049
231	19.25	0.10	0.065	0.016	(0.058)	0.049
232	19.33	0.13	0.086	0.016	(0.078)	0.070
233	19.42	0.13	0.086	0.016	(0.078)	0.071
234	19.50	0.13	0.086	0.016	(0.078)	0.071

235	19.58	0.10	0.065	0.016	(	0.058)	0.049
236	19.67	0.10	0.065	0.015	(	0.058)	0.049
237	19.75	0.10	0.065	0.015	(	0.058)	0.049
238	19.83	0.07	0.043	0.015	(	0.039)	0.028
239	19.92	0.07	0.043	0.015	(	0.039)	0.028
240	20.00	0.07	0.043	0.015	(	0.039)	0.028
241	20.08	0.10	0.065	0.015	(	0.058)	0.050
242	20.17	0.10	0.065	0.015	(	0.058)	0.050
243	20.25	0.10	0.065	0.015	(	0.058)	0.050
244	20.33	0.10	0.065	0.015	(	0.058)	0.050
245	20.42	0.10	0.065	0.015	(	0.058)	0.050
246	20.50	0.10	0.065	0.015	(	0.058)	0.050
247	20.58	0.10	0.065	0.015	(	0.058)	0.050
248	20.67	0.10	0.065	0.015	(	0.058)	0.050
249	20.75	0.10	0.065	0.015	(	0.058)	0.050
250	20.83	0.07	0.043	0.015	(	0.039)	0.029
251	20.92	0.07	0.043	0.015	(	0.039)	0.029
252	21.00	0.07	0.043	0.014	(	0.039)	0.029
253	21.08	0.10	0.065	0.014	(	0.058)	0.050
254	21.17	0.10	0.065	0.014	(	0.058)	0.050
255	21.25	0.10	0.065	0.014	(	0.058)	0.050
256	21.33	0.07	0.043	0.014	(	0.039)	0.029
257	21.42	0.07	0.043	0.014	(	0.039)	0.029
258	21.50	0.07	0.043	0.014	(	0.039)	0.029
259	21.58	0.10	0.065	0.014	(	0.058)	0.051
260	21.67	0.10	0.065	0.014	(	0.058)	0.051
261	21.75	0.10	0.065	0.014	(	0.058)	0.051
262	21.83	0.07	0.043	0.014	(	0.039)	0.029
263	21.92	0.07	0.043	0.014	(	0.039)	0.029
264	22.00	0.07	0.043	0.014	(	0.039)	0.029
265	22.08	0.10	0.065	0.014	(	0.058)	0.051
266	22.17	0.10	0.065	0.014	(	0.058)	0.051
267	22.25	0.10	0.065	0.014	(	0.058)	0.051
268	22.33	0.07	0.043	0.014	(	0.039)	0.029
269	22.42	0.07	0.043	0.014	(	0.039)	0.030
270	22.50	0.07	0.043	0.014	(	0.039)	0.030
271	22.58	0.07	0.043	0.014	(	0.039)	0.030
272	22.67	0.07	0.043	0.013	(	0.039)	0.030

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273  22.75     0.07      0.043          0.013    (  0.039)         0.030
274  22.83     0.07      0.043          0.013    (  0.039)         0.030
275  22.92     0.07      0.043          0.013    (  0.039)         0.030
276  23.00     0.07      0.043          0.013    (  0.039)         0.030
277  23.08     0.07      0.043          0.013    (  0.039)         0.030
278  23.17     0.07      0.043          0.013    (  0.039)         0.030
279  23.25     0.07      0.043          0.013    (  0.039)         0.030
280  23.33     0.07      0.043          0.013    (  0.039)         0.030
281  23.42     0.07      0.043          0.013    (  0.039)         0.030
282  23.50     0.07      0.043          0.013    (  0.039)         0.030
283  23.58     0.07      0.043          0.013    (  0.039)         0.030
284  23.67     0.07      0.043          0.013    (  0.039)         0.030
285  23.75     0.07      0.043          0.013    (  0.039)         0.030
286  23.83     0.07      0.043          0.013    (  0.039)         0.030
287  23.92     0.07      0.043          0.013    (  0.039)         0.030
288  24.00     0.07      0.043          0.013    (  0.039)         0.030
            (Loss Rate Not Used)
    Sum =     100.0                                    Sum =    57.2
     Flood volume = Effective rainfall      4.76(In)
      times area       8.7(Ac.)/[(In)/(Ft.)] =       3.4(Ac.Ft)
     Total soil loss =      0.63(In)
     Total soil loss =     0.452(Ac.Ft)
     Total rainfall =      5.39(In)
     Flood volume =       149741.2 Cubic Feet
     Total soil loss =       19694.9 Cubic Feet
     ---------------------------------------------------------------------
      Peak flow rate of this hydrograph =     20.471(CFS)
     ---------------------------------------------------------------------
     +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                         24 - H O U R    S T O R M
                    R u n o f f      H y d r o g r a p h
     ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

     ---------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        7.5      15.0      22.5      30.0
 ---------------------------------------------------------------------
   0+ 5       0.0984     14.29  V         |        Q|         |         |
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0+10       0.1970     14.31  V         |         Q|         |         |
0+15       0.2956     14.32  V         |         Q|         |         |
0+20       0.3944     14.35  V         |         Q|         |         |
0+25       0.4937     14.41  V         |         Q|         |         |
0+30       0.5931     14.43  V         |         Q|         |         |
0+35       0.6926     14.44  V         |         Q|         |         |
0+40       0.7921     14.45  V         |         Q|         |         |
0+45       0.8916     14.45  |V        |         Q|         |         |
0+50       0.9915     14.50  |V        |         Q|         |         |
0+55       1.0920     14.59  |V        |         Q|         |         |
1+ 0       1.1927     14.62  |V        |         Q|         |         |
1+ 5       1.2932     14.59  |V        |         Q|         |         |
1+10       1.3931     14.51  |V        |         Q|         |         |
1+15       1.4929     14.49  |V        |         Q|         |         |
1+20       1.5926     14.48  |V        |         Q|         |         |
1+25       1.6923     14.47  | V       |         Q|         |         |
1+30       1.7919     14.47  | V       |         Q|         |         |
1+35       1.8916     14.47  | V       |         Q|         |         |
1+40       1.9913     14.47  | V       |         Q|         |         |
1+45       2.0910     14.47  | V       |         Q|         |         |
1+50       2.1909     14.52  | V       |         Q|         |         |
1+55       2.2916     14.61  | V       |         Q|         |         |
2+ 0       2.3924     14.64  | V       |         Q|         |         |
2+ 5       2.4933     14.65  |  V      |         Q|         |         |
2+10       2.5943     14.66  |  V      |         Q|         |         |
2+15       2.6953     14.67  |  V      |         Q|         |         |
2+20       2.7963     14.67  |  V      |         Q|         |         |
2+25       2.8974     14.67  |  V      |         Q|         |         |
2+30       2.9985     14.68  |  V      |         Q|         |         |
2+35       3.0999     14.72  |  V      |         Q|         |         |
2+40       3.2019     14.81  |  V      |         Q|         |         |
2+45       3.3041     14.84  |   V     |         Q|         |         |
2+50       3.4064     14.86  |   V     |         Q|         |         |
2+55       3.5088     14.86  |   V     |         Q|         |         |
3+ 0       3.6112     14.87  |   V     |         Q|         |         |
3+ 5       3.7136     14.87  |   V     |         Q|         |         |
3+10       3.8160     14.88  |   V     |         Q|         |         |
3+15       3.9185     14.88  |   V     |         Q|         |         |
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3+20	4.0210	14.88	V	Q		
3+25	4.1234	14.88	V	Q		
3+30	4.2259	14.88	V	Q		
3+35	4.3284	14.88	V	Q		
3+40	4.4309	14.88	V	Q		
3+45	4.5334	14.89	V	Q		
3+50	4.6363	14.93	V	Q		
3+55	4.7397	15.02	V	Q		
4+ 0	4.8434	15.05	V	Q		
4+ 5	4.9472	15.06	V	Q		
4+10	5.0510	15.07	V	Q		
4+15	5.1548	15.08	V	Q		
4+20	5.2590	15.13	V	Q		
4+25	5.3638	15.22	V	Q		
4+30	5.4688	15.25	V	Q		
4+35	5.5739	15.26	V	Q		
4+40	5.6791	15.27	V	Q		
4+45	5.7843	15.28	V	Q		
4+50	5.8898	15.32	V	Q		
4+55	5.9960	15.42	V	Q		
5+ 0	6.1024	15.44	V	Q		
5+ 5	6.2082	15.37	V	Q		
5+10	6.3129	15.19	V	Q		
5+15	6.4172	15.15	V	Q		
5+20	6.5217	15.17	V	Q		
5+25	6.6267	15.25	V	Q		
5+30	6.7319	15.27	V	Q		
5+35	6.8375	15.32	V	Q		
5+40	6.9437	15.42	V	Q		
5+45	7.0501	15.45	V	Q		
5+50	7.1567	15.47	V	Q		
5+55	7.2633	15.48	V	Q		
6+ 0	7.3699	15.48	V	Q		
6+ 5	7.4769	15.53	V	Q		
6+10	7.5845	15.63	V	Q		
6+15	7.6923	15.65	V	Q		
6+20	7.8002	15.67	V	Q		
6+25	7.9081	15.67	V	Q		

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6+30       8.0161     15.68  |         V|          Q         |          |
6+35       8.1245     15.73  |          V          Q         |          |
6+40       8.2334     15.82  |          V          |Q        |          |
6+45       8.3426     15.85  |          V          |Q        |          |
6+50       8.4518     15.86  |          V          |Q        |          |
6+55       8.5611     15.87  |          V          |Q        |          |
7+ 0       8.6705     15.88  |          V          |Q        |          |
7+ 5       8.7798     15.88  |          V          |Q        |          |
7+10       8.8892     15.88  |          V          |Q        |          |
7+15       8.9986     15.88  |          |V         |Q        |          |
7+20       9.1083     15.93  |          |V         |Q        |          |
7+25       9.2187     16.02  |          |V         |Q        |          |
7+30       9.3292     16.05  |          |V         |Q        |          |
7+35       9.4401     16.11  |          |V         |Q        |          |
7+40       9.5518     16.21  |          |V         |Q        |          |
7+45       9.6636     16.24  |          |V         |Q        |          |
7+50       9.7758     16.30  |          | V        |Q        |          |
7+55       9.8888     16.40  |          | V        |Q        |          |
8+ 0      10.0019     16.43  |          | V        |Q        |          |
8+ 5      10.1158     16.53  |          | V        | Q       |          |
8+10      10.2310     16.73  |          | V        | Q       |          |
8+15      10.3466     16.78  |          | V        | Q       |          |
8+20      10.4624     16.81  |          | V        | Q       |          |
8+25      10.5783     16.83  |          |  V       | Q       |          |
8+30      10.6942     16.84  |          |  V       | Q       |          |
8+35      10.8105     16.89  |          |  V       | Q       |          |
8+40      10.9275     16.98  |          |  V       | Q       |          |
8+45      11.0446     17.01  |          |  V       | Q       |          |
8+50      11.1622     17.07  |          |  V       | Q       |          |
8+55      11.2804     17.17  |          |  V       | Q       |          |
9+ 0      11.3989     17.20  |          |   V      | Q       |          |
9+ 5      11.5180     17.30  |          |   V      |  Q      |          |
9+10      11.6385     17.49  |          |   V      |  Q      |          |
9+15      11.7594     17.55  |          |   V      |  Q      |          |
9+20      11.8808     17.62  |          |   V      |  Q      |          |
9+25      12.0029     17.73  |          |   V      |  Q      |          |
9+30      12.1252     17.77  |          |   V      |  Q      |          |
9+35      12.2480     17.83  |          |    V     |  Q      |          |
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9+40	12.3715	17.93	|	| V |	Q	|	|
9+45	12.4952	17.96	|	| V |	Q	|	|
9+50	12.6193	18.02	|	| V |	Q	|	|
9+55	12.7441	18.12	|	| V |	Q	|	|
10+ 0	12.8692	18.15	|	| V |	Q	|	|
10+ 5	12.9922	17.86	|	| V |	Q	|	|
10+10	13.1108	17.23	|	| V |	Q	|	|
10+15	13.2283	17.05	|	| V |	Q	|	|
10+20	13.3451	16.97	|	| V |	Q	|	|
10+25	13.4617	16.93	|	| V |	Q	|	|
10+30	13.5781	16.90	|	| V |	Q	|	|
10+35	13.6959	17.10	|	| V |	Q	|	|
10+40	13.8168	17.55	|	| V |	Q	|	|
10+45	13.9386	17.69	|	| V |	Q	|	|
10+50	14.0608	17.75	|	| V |	Q	|	|
10+55	14.1833	17.78	|	| V |	Q	|	|
11+ 0	14.3059	17.80	|	| V |	Q	|	|
11+ 5	14.4283	17.77	|	| V |	Q	|	|
11+10	14.5501	17.69	|	| V |	Q	|	|
11+15	14.6717	17.66	|	| V |	Q	|	|
11+20	14.7933	17.65	|	| V |	Q	|	|
11+25	14.9148	17.65	|	| V |	Q	|	|
11+30	15.0363	17.64	|	| V |	Q	|	|
11+35	15.1572	17.55	|	| V |	Q	|	|
11+40	15.2769	17.37	|	| V |	Q	|	|
11+45	15.3961	17.32	|	| V |	Q	|	|
11+50	15.5156	17.34	|	| V|	Q	|	|
11+55	15.6355	17.42	|	| V|	Q	|	|
12+ 0	15.7556	17.44	|	| V|	Q	|	|
12+ 5	15.8779	17.75	|	| V|	Q	|	|
12+10	16.0046	18.40	|	| V|	Q	|	|
12+15	16.1327	18.59	|	| V|	Q	|	|
12+20	16.2616	18.72	|	| V	Q	|	|
12+25	16.3915	18.86	|	| V	Q	|	|
12+30	16.5218	18.92	|	| V	Q	|	|
12+35	16.6529	19.04	|	| V	Q	|	|
12+40	16.7854	19.24	|	| V	Q	|	|
12+45	16.9183	19.29	|	| V	Q	|	|

12+50	17.0517	19.37			V Q	
12+55	17.1858	19.47			V Q	
13+ 0	17.3201	19.51			V Q	
13+ 5	17.4561	19.74			V Q	
13+10	17.5953	20.21			V Q	
13+15	17.7355	20.35			V Q	
13+20	17.8761	20.41			V Q	
13+25	18.0169	20.45			V Q	
13+30	18.1579	20.47			V Q	
13+35	18.2957	20.00			V Q	
13+40	18.4265	19.00			V Q	
13+45	18.5554	18.71			V Q	
13+50	18.6833	18.58			VQ	
13+55	18.8108	18.51			VQ	
14+ 0	18.9379	18.46			VQ	
14+ 5	19.0661	18.61			VQ	
14+10	19.1968	18.97			V Q	
14+15	19.3281	19.07			V Q	
14+20	19.4595	19.08			V Q	
14+25	19.5905	19.02			VQ	
14+30	19.7214	19.01			VQ	
14+35	19.8523	19.00			VQ	
14+40	19.9832	19.00			VQ	
14+45	20.1140	19.00			VQ	
14+50	20.2446	18.96			VQ	
14+55	20.3745	18.86			Q	
15+ 0	20.5042	18.84			Q	
15+ 5	20.6336	18.78			Q	
15+10	20.7623	18.69			QV	
15+15	20.8908	18.66			QV	
15+20	21.0188	18.60			QV	
15+25	21.1463	18.50			Q V	
15+30	21.2735	18.47			Q V	
15+35	21.3994	18.28			Q V	
15+40	21.5227	17.91			Q V	
15+45	21.6453	17.80			Q V	
15+50	21.7675	17.75			Q V	
15+55	21.8896	17.72			Q V	

```
16+ 0      22.0115     17.71  |          |          |  Q   V  |          |
16+ 5      22.1289     17.04  |          |          | Q    V  |          |
16+10      22.2368     15.66  |          |          Q      V  |          |
16+15      22.3419     15.27  |          |          Q      V  |          |
16+20      22.4458     15.09  |          |          Q      V  |          |
16+25      22.5490     14.99  |          |         Q|      V  |          |
16+30      22.6518     14.93  |          |         Q|      V  |          |
16+35      22.7541     14.85  |          |         Q|       V |          |
16+40      22.8556     14.74  |          |         Q|       V |          |
16+45      22.9569     14.71  |          |         Q|       V |          |
16+50      23.0582     14.70  |          |         Q|       V |          |
16+55      23.1594     14.70  |          |         Q|       V |          |
17+ 0      23.2606     14.69  |          |         Q|       V |          |
17+ 5      23.3624     14.78  |          |         Q|       V |          |
17+10      23.4655     14.96  |          |         Q|       V |          |
17+15      23.5689     15.02  |          |          Q        V|          |
17+20      23.6725     15.04  |          |          Q        V|          |
17+25      23.7762     15.06  |          |          Q        V|          |
17+30      23.8800     15.06  |          |          Q        V|          |
17+35      23.9837     15.07  |          |          Q        V|          |
17+40      24.0876     15.07  |          |          Q        V|          |
17+45      24.1914     15.07  |          |          Q        V|          |
17+50      24.2949     15.03  |          |          Q        V|          |
17+55      24.3978     14.94  |          |         Q|         V          |
18+ 0      24.5005     14.91  |          |         Q|         V          |
18+ 5      24.6032     14.90  |          |         Q|         V          |
18+10      24.7058     14.90  |          |         Q|         V          |
18+15      24.8083     14.89  |          |         Q|         V          |
18+20      24.9109     14.89  |          |         Q|         V          |
18+25      25.0135     14.89  |          |         Q|         V          |
18+30      25.1160     14.89  |          |         Q|         V          |
18+35      25.2183     14.85  |          |         Q|          |V         |
18+40      25.3199     14.76  |          |         Q|          |V         |
18+45      25.4214     14.73  |          |         Q|          |V         |
18+50      25.5225     14.68  |          |         Q|          |V         |
18+55      25.6229     14.58  |          |         Q|          |V         |
19+ 0      25.7231     14.55  |          |         Q|          |V         |
19+ 5      25.8235     14.58  |          |         Q|          |V         |
```

19+10	25.9245	14.67	|	|	Q|	|V |
19+15	26.0257	14.69	|	|	Q|	| V |
19+20	26.1272	14.74	|	|	Q|	| V |
19+25	26.2294	14.84	|	|	Q|	| V |
19+30	26.3318	14.87	|	|	Q|	| V |
19+35	26.4341	14.84	|	|	Q|	| V |
19+40	26.5357	14.76	|	|	Q|	| V |
19+45	26.6372	14.74	|	|	Q|	| V |
19+50	26.7383	14.68	|	|	Q|	| V |
19+55	26.8388	14.59	|	|	Q|	| V |
20+ 0	26.9391	14.56	|	|	Q|	| V |
20+ 5	27.0395	14.59	|	|	Q|	| V |
20+10	27.1406	14.67	|	|	Q|	| V |
20+15	27.2418	14.70	|	|	Q|	| V |
20+20	27.3431	14.71	|	|	Q|	| V |
20+25	27.4444	14.71	|	|	Q|	| V |
20+30	27.5457	14.72	|	|	Q|	| V |
20+35	27.6471	14.72	|	|	Q|	| V |
20+40	27.7485	14.72	|	|	Q|	| V |
20+45	27.8499	14.72	|	|	Q|	| V |
20+50	27.9510	14.68	|	|	Q|	| V |
20+55	28.0514	14.59	|	|	Q|	| V |
21+ 0	28.1517	14.56	|	|	Q|	| V |
21+ 5	28.2522	14.59	|	|	Q|	| V |
21+10	28.3533	14.68	|	|	Q|	| V |
21+15	28.4546	14.70	|	|	Q|	| V |
21+20	28.5556	14.67	|	|	Q|	| V |
21+25	28.6560	14.58	|	|	Q|	| V |
21+30	28.7563	14.56	|	|	Q|	| V |
21+35	28.8568	14.60	|	|	Q|	| V |
21+40	28.9579	14.68	|	|	Q|	| V |
21+45	29.0592	14.70	|	|	Q|	| V |
21+50	29.1602	14.67	|	|	Q|	| V |
21+55	29.2607	14.58	|	|	Q|	| V |
22+ 0	29.3610	14.56	|	|	Q|	| V |
22+ 5	29.4615	14.60	|	|	Q|	| V |
22+10	29.5626	14.68	|	|	Q|	| V |
22+15	29.6639	14.71	|	|	Q|	| V |

```
   22+20      29.7650     14.67  |          |         Q|          |      V   |
   22+25      29.8654     14.59  |          |         Q|          |      V   |
   22+30      29.9657     14.57  |          |         Q|          |      V   |
   22+35      30.0660     14.56  |          |         Q|          |       V  |
   22+40      30.1662     14.55  |          |         Q|          |       V  |
   22+45      30.2664     14.55  |          |         Q|          |       V  |
   22+50      30.3666     14.55  |          |         Q|          |       V  |
   22+55      30.4667     14.54  |          |         Q|          |       V  |
   23+ 0      30.5669     14.54  |          |         Q|          |       V  |
   23+ 5      30.6671     14.54  |          |         Q|          |       V  |
   23+10      30.7673     14.55  |          |         Q|          |       V  |
   23+15      30.8674     14.55  |          |         Q|          |        V |
   23+20      30.9676     14.55  |          |         Q|          |        V |
   23+25      31.0678     14.55  |          |         Q|          |        V |
   23+30      31.1680     14.55  |          |         Q|          |        V |
   23+35      31.2681     14.55  |          |         Q|          |        V |
   23+40      31.3683     14.55  |          |         Q|          |        V |
   23+45      31.4685     14.55  |          |         Q|          |        V |
   23+50      31.5687     14.55  |          |         Q|          |        V |
   23+55      31.6689     14.55  |          |         Q|          |         V|
   24+ 0      31.7691     14.55  |          |         Q|          |         V|
   24+ 5      31.8688     14.49  |          |         Q|          |         V|
   24+10      31.9677     14.36  |          |         Q|          |         V|
   24+15      32.0664     14.32  |          |         Q|          |         V|
   24+20      32.1649     14.30  |          |         Q|          |         V|
   24+25      32.2633     14.30  |          |         Q|          |         V|
   24+30      32.3617     14.29  |          |         Q|          |         V|
   24+35      32.4601     14.29  |          |         Q|          |         V|
-------------------------------------------------------------------------------
```

RCFC&WCD SUH METHOD – 100 YR. – BONADIMAN PROGRAM

iii) PROPOSED CONDITION

iv) DRAINAGE AREA DA1 – DMA'S 1-3, 13-17

v) DRAINAGE AREA DA2 – DMA'S 4-9, 10-12

DRAINAGE AREA DA1
DMA'S 1-3 & 13-17

U n i t H y d r o g r a p h A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 1- 100 YR, 1-hr

Drainage Area = 0.54(Ac.) = 0.001 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 0.54(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 60.00(Ft.)
Length along longest watercourse measured to centroid = 30.00(Ft.)
Length along longest watercourse = 0.011 Mi.
Length along longest watercourse measured to centroid = 0.006 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 88.0000 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.004 Hr.
Lag time =     0.24 Min.
25% of lag time =     0.06 Min.
40% of lag time =     0.09 Min.
Unit time =     5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.54             0.51                 0.28

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.54             1.61                 0.87

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.514(In)
Area Averaged 100-Year Rainfall =    1.610(In)

Point rain (area averaged) =    1.610(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    1.610(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     0.540           69.00          0.200
 Total Area Entered =      0.54(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306        1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

Slope of intensity-duration curve for a 1 hour storm =0.5500

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	2119.172	100.000	0.544
		Sum = 100.000	Sum= 0.544

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	3.30	0.638	0.306	(0.574)	0.332
2	0.17	4.20	0.811	0.306	(0.730)	0.506
3	0.25	4.40	0.850	0.306	(0.765)	0.544
4	0.33	4.80	0.927	0.306	(0.835)	0.622
5	0.42	5.20	1.005	0.306		

U n i t H y d r o g r a p h A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 1- 100 YR, 3-hr

Drainage Area = 0.54(Ac.) = 0.001 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 0.54(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 60.00(Ft.)
Length along longest watercourse measured to centroid = 30.00(Ft.)
Length along longest watercourse = 0.011 Mi.
Length along longest watercourse measured to centroid = 0.006 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 88.0000 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.004 Hr.
Lag time =     0.24 Min.
25% of lag time =     0.06 Min.
40% of lag time =     0.09 Min.
Unit time =     5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.54             0.86                 0.47

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.54             2.25                 1.22

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.864(In)
Area Averaged 100-Year Rainfall =    2.250(In)

Point rain (area averaged) =    2.250(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.250(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     0.540           69.00          0.200
 Total Area Entered =      0.54(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306       1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	2119.172	100.000	0.544
		Sum = 100.000	Sum= 0.544

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.351	0.306	(0.316)	0.045
2	0.17	1.30	0.351	0.306	(0.316)	0.045
3	0.25	1.10	0.297	(0.306)	0.267	0.030
4	0.33	1.50	0.405	0.306	(0.364)	0.099
5	0.42	1.50	0.405	0.306	(0.364)	0.099
6	0.50	1.80	0.486	0.306	(0.437)	0.180
7	0.58	1.50	0.405	0.306	(0.364)	0.099
8	0.67	1.80	0.486	0.306	(0.437)	0.180
9	0.75	1.80	0.486	0.306	(0.437)	0.180
10	0.83	1.50	0.405	0.306	(0.364)	0.099
11	0.92	1.60	0.432	0.306	(0.389)	0.126
12	1.00	1.80	0.486	0.306	(0.437)	0.180
13	1.08	2.20	0.594	0.306	(0.535)	0.288

```
14   1.17     2.20      0.594          0.306    (  0.535)         0.288
15   1.25     2.20      0.594          0.306    (  0.535)         0.288
16   1.33     2.00      0.540          0.306    (  0.486)         0.234
17   1.42     2.60      0.702          0.306    (  0.632)         0.396
18   1.50     2.70      0.729          0.306    (  0.656)         0.423
19   1.58     2.40      0.648          0.306    (  0.583)         0.342
20   1.67     2.70      0.729          0.306    (  0.656)         0.423
21   1.75     3.30      0.891          0.306    (  0.802)         0.585
22   1.83     3.10      0.837          0.306    (  0.753)         0.531
23   1.92     2.90      0.783          0.306    (  0.705)         0.477
24   2.00     3.00      0.810          0.306    (  0.729)         0.504
25   2.08     3.10      0.837          0.306    (  0.753)         0.531
26   2.17     4.20      1.134          0.306    (  1.021)         0.828
27   2.25     5.00      1.350          0.306    (  1.215)         1.044
28   2.33     3.50      0.945          0.306    (  0.850)         0.639
29   2.42     6.80      1.836          0.306    (  1.652)         1.530
30   2.50     7.30      1.971          0.306    (  1.774)         1.665
31   2.58     8.20      2.214          0.306    (  1.993)         1.908
32   2.67     5.90      1.593          0.306    (  1.434)         1.287
33   2.75     2.00      0.540          0.306    (  0.486)         0.234
34   2.83     1.80      0.486          0.306    (  0.437)         0.180
35   2.92     1.80      0.486          0.306    (  0.437)         0.180
36   3.00     0.60      0.162       (  0.306)       0.146         0.016
          (Loss Rate Not Used)
   Sum =     100.0                                    Sum =    16.2
    Flood volume = Effective rainfall      1.35(In)
     times area       0.5(Ac.)/[(In)/(Ft.)] =       0.1(Ac.Ft)
    Total soil loss =      0.90(In)
    Total soil loss =     0.041(Ac.Ft)
    Total rainfall =      2.25(In)
    Flood volume =        2645.2 Cubic Feet
    Total soil loss =        1765.3 Cubic Feet
    ---------------------------------------------------------------------
     Peak flow rate of this hydrograph =      1.039(CFS)
    ---------------------------------------------------------------------
    +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        3 - H O U R    S T O R M
                    R u n o f f      H y d r o g r a p h
```

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0002	0.02	Q				
0+10	0.0003	0.02	Q				
0+15	0.0005	0.02	Q				
0+20	0.0008	0.05	Q				
0+25	0.0012	0.05	Q				
0+30	0.0019	0.10	QV				
0+35	0.0022	0.05	QV				
0+40	0.0029	0.10	QV				
0+45	0.0036	0.10	Q V				
0+50	0.0040	0.05	Q V				
0+55	0.0044	0.07	Q V				

U n i t H y d r o g r a p h A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 1- 100 YR, 6-hr

Drainage Area = 0.54(Ac.) = 0.001 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 0.54(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 60.00(Ft.)
Length along longest watercourse measured to centroid = 30.00(Ft.)
Length along longest watercourse = 0.011 Mi.
Length along longest watercourse measured to centroid = 0.006 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 88.0000 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.004 Hr.
Lag time =     0.24 Min.
25% of lag time =     0.06 Min.
40% of lag time =     0.09 Min.
Unit time =     5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.54             1.20                  0.65

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.54             2.99                  1.61

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.200(In)
Area Averaged 100-Year Rainfall =    2.990(In)

Point rain (area averaged) =    2.990(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.990(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     0.540           69.00          0.200
 Total Area Entered =      0.54(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306       1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	2119.172	100.000	0.544
		Sum = 100.000	Sum= 0.544

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.179	(0.306)	0.161	0.018
2	0.17	0.60	0.215	(0.306)	0.194	0.022
3	0.25	0.60	0.215	(0.306)	0.194	0.022
4	0.33	0.60	0.215	(0.306)	0.194	0.022
5	0.42	0.60	0.215	(0.306)	0.194	0.022
6	0.50	0.70	0.251	(0.306)	0.226	0.025
7	0.58	0.70	0.251	(0.306)	0.226	0.025
8	0.67	0.70	0.251	(0.306)	0.226	0.025
9	0.75	0.70	0.251	(0.306)	0.226	0.025
10	0.83	0.70	0.251	(0.306)	0.226	0.025
11	0.92	0.70	0.251	(0.306)	0.226	0.025
12	1.00	0.80	0.287	(0.306)	0.258	0.029
13	1.08	0.80	0.287	(0.306)	0.258	0.029

14	1.17	0.80	0.287	(0.306)	0.258	0.029
15	1.25	0.80	0.287	(0.306)	0.258	0.029
16	1.33	0.80	0.287	(0.306)	0.258	0.029
17	1.42	0.80	0.287	(0.306)	0.258	0.029
18	1.50	0.80	0.287	(0.306)	0.258	0.029
19	1.58	0.80	0.287	(0.306)	0.258	0.029
20	1.67	0.80	0.287	(0.306)	0.258	0.029
21	1.75	0.80	0.287	(0.306)	0.258	0.029
22	1.83	0.80	0.287	(0.306)	0.258	0.029
23	1.92	0.80	0.287	(0.306)	0.258	0.029
24	2.00	0.90	0.323	(0.306)	0.291	0.032
25	2.08	0.80	0.287	(0.306)	0.258	0.029
26	2.17	0.90	0.323	(0.306)	0.291	0.032
27	2.25	0.90	0.323	(0.306)	0.291	0.032
28	2.33	0.90	0.323	(0.306)	0.291	0.032
29	2.42	0.90	0.323	(0.306)	0.291	0.032
30	2.50	0.90	0.323	(0.306)	0.291	0.032
31	2.58	0.90	0.323	(0.306)	0.291	0.032
32	2.67	0.90	0.323	(0.306)	0.291	0.032
33	2.75	1.00	0.359	0.306	(0.323)	0.053
34	2.83	1.00	0.359	0.306	(0.323)	0.053
35	2.92	1.00	0.359	0.306	(0.323)	0.053
36	3.00	1.00	0.359	0.306	(0.323)	0.053
37	3.08	1.00	0.359	0.306	(0.323)	0.053
38	3.17	1.10	0.395	0.306	(0.355)	0.089
39	3.25	1.10	0.395	0.306	(0.355)	0.089
40	3.33	1.10	0.395	0.306	(0.355)	0.089
41	3.42	1.20	0.431	0.306	(0.388)	0.125
42	3.50	1.30	0.466	0.306	(0.420)	0.161
43	3.58	1.40	0.502	0.306	(0.452)	0.197
44	3.67	1.40	0.502	0.306	(0.452)	0.197
45	3.75	1.50	0.538	0.306	(0.484)	0.233
46	3.83	1.50	0.538	0.306	(0.484)	0.233
47	3.92	1.60	0.574	0.306	(0.517)	0.268
48	4.00	1.60	0.574	0.306	(0.517)	0.268
49	4.08	1.70	0.610	0.306	(0.549)	0.304
50	4.17	1.80	0.646	0.306	(0.581)	0.340
51	4.25	1.90	0.682	0.306	(0.614)	0.376

```
52   4.33     2.00      0.718          0.306    (  0.646)        0.412
53   4.42     2.10      0.753          0.306    (  0.678)        0.448
54   4.50     2.10      0.753          0.306    (  0.678)        0.448
55   4.58     2.20      0.789          0.306    (  0.710)        0.484
56   4.67     2.30      0.825          0.306    (  0.743)        0.520
57   4.75     2.40      0.861          0.306    (  0.775)        0.555
58   4.83     2.40      0.861          0.306    (  0.775)        0.555
59   4.92     2.50      0.897          0.306    (  0.807)        0.591
60   5.00     2.60      0.933          0.306    (  0.840)        0.627
61   5.08     3.10      1.112          0.306    (  1.001)        0.807
62   5.17     3.60      1.292          0.306    (  1.163)        0.986
63   5.25     3.90      1.399          0.306    (  1.259)        1.094
64   5.33     4.20      1.507          0.306    (  1.356)        1.201
65   5.42     4.70      1.686          0.306    (  1.518)        1.381
66   5.50     5.60      2.009          0.306    (  1.808)        1.704
67   5.58     1.90      0.682          0.306    (  0.614)        0.376
68   5.67     0.90      0.323       (  0.306)       0.291        0.032
69   5.75     0.60      0.215       (  0.306)       0.194        0.022
70   5.83     0.50      0.179       (  0.306)       0.161        0.018
71   5.92     0.30      0.108       (  0.306)       0.097        0.011
72   6.00     0.20      0.072       (  0.306)       0.065        0.007
          (Loss Rate Not Used)
   Sum =     100.0                                    Sum =    16.4
    Flood volume = Effective rainfall      1.37(In)
     times area       0.5(Ac.)/[(In)/(Ft.)] =       0.1(Ac.Ft)
    Total soil loss =      1.62(In)
    Total soil loss =     0.073(Ac.Ft)
    Total rainfall =      2.99(In)
    Flood volume =        2678.5 Cubic Feet
    Total soil loss =        3182.5 Cubic Feet
    ---------------------------------------------------------------------
     Peak flow rate of this hydrograph =      0.928(CFS)
    ---------------------------------------------------------------------
    +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        6 - H O U R    S T O R M
                    R u n o f f      H y d r o g r a p h
    ---------------------------------------------------------------------
                Hydrograph in   5   Minute intervals ((CFS))
```

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0001	0.01	Q				
0+10	0.0001	0.01	Q				
0+15	0.0002	0.01	Q				
0+20	0.0003	0.01	Q				
0+25	0.0004	0.01	Q				
0+30	0.0005	0.01	Q				
0+35	0.0006	0.01	Q				
0+40	0.0007	0.01	Q				
0+45	0.0008	0.01	Q				
0+50	0.0009	0.01	Q				
0+55	0.0010	0.01	Q				
1+ 0	0.0011	0.02	Q				
1+ 5	0.0012	0.02	Q				
1+10	0.0013	0.02	Q				
1+15	0.0014	0.02	Q				
1+20	0.0015	0.02	Q				
1+25	0.0016	0.02	QV				
1+30	0.0017	0.02	QV				
1+35	0.0018	0.02	QV				
1+40	0.0019	0.02	QV				
1+45	0.0020	0.02	QV				
1+50	0.0021	0.02	QV				
1+55	0.0022	0.02	QV				
2+ 0	0.0024	0.02	QV				
2+ 5	0.0025	0.02	QV				
2+10	0.0026	0.02	QV				
2+15	0.0027	0.02	QV				
2+20	0.0028	0.02	QV				
2+25	0.0030	0.02	QV				
2+30	0.0031	0.02	Q V				
2+35	0.0032						

U n i t H y d r o g r a p h A n a l y s i s

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Study date 01/04/23 File: T124100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 1- 100 YR, 24-hr

Drainage Area = 0.54(Ac.) = 0.001 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 0.54(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 60.00(Ft.)
Length along longest watercourse measured to centroid = 30.00(Ft.)
Length along longest watercourse = 0.011 Mi.
Length along longest watercourse measured to centroid = 0.006 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 88.0000 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.004 Hr.
Lag time =     0.24 Min.
25% of lag time =     0.06 Min.
40% of lag time =     0.09 Min.
Unit time =     5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.54             2.06                  1.11

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.54             5.39                  2.91

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    2.060(In)
Area Averaged 100-Year Rainfall =    5.390(In)

Point rain (area averaged) =    5.390(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    5.390(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     0.540           69.00         0.200
 Total Area Entered =      0.54(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306       1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	2119.172	100.000	0.544
		Sum = 100.000	Sum= 0.544

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.043	(0.542)	0.039	0.004
2	0.17	0.07	0.043	(0.540)	0.039	0.004
3	0.25	0.07	0.043	(0.538)	0.039	0.004
4	0.33	0.10	0.065	(0.536)	0.058	0.006
5	0.42	0.10	0.065	(0.534)	0.058	0.006
6	0.50	0.10	0.065	(0.531)	0.058	0.006
7	0.58	0.10	0.065	(0.529)	0.058	0.006
8	0.67	0.10	0.065	(0.527)	0.058	0.006
9	0.75	0.10	0.065	(0.525)	0.058	0.006
10	0.83	0.13	0.086	(0.523)	0.078	0.009
11	0.92	0.13	0.086	(0.521)	0.078	0.009
12	1.00	0.13	0.086	(0.519)	0.078	0.009
13	1.08	0.10	0.065	(0.517)	0.058	0.006

14	1.17	0.10	0.065	(0.515)	0.058	0.006
15	1.25	0.10	0.065	(0.513)	0.058	0.006
16	1.33	0.10	0.065	(0.511)	0.058	0.006
17	1.42	0.10	0.065	(0.509)	0.058	0.006
18	1.50	0.10	0.065	(0.507)	0.058	0.006
19	1.58	0.10	0.065	(0.505)	0.058	0.006
20	1.67	0.10	0.065	(0.503)	0.058	0.006
21	1.75	0.10	0.065	(0.501)	0.058	0.006
22	1.83	0.13	0.086	(0.499)	0.078	0.009
23	1.92	0.13	0.086	(0.497)	0.078	0.009
24	2.00	0.13	0.086	(0.495)	0.078	0.009
25	2.08	0.13	0.086	(0.493)	0.078	0.009
26	2.17	0.13	0.086	(0.491)	0.078	0.009
27	2.25	0.13	0.086	(0.489)	0.078	0.009
28	2.33	0.13	0.086	(0.487)	0.078	0.009
29	2.42	0.13	0.086	(0.485)	0.078	0.009
30	2.50	0.13	0.086	(0.483)	0.078	0.009
31	2.58	0.17	0.108	(0.481)	0.097	0.011
32	2.67	0.17	0.108	(0.479)	0.097	0.011
33	2.75	0.17	0.108	(0.477)	0.097	0.011
34	2.83	0.17	0.108	(0.475)	0.097	0.011
35	2.92	0.17	0.108	(0.473)	0.097	0.011
36	3.00	0.17	0.108	(0.471)	0.097	0.011
37	3.08	0.17	0.108	(0.469)	0.097	0.011
38	3.17	0.17	0.108	(0.467)	0.097	0.011
39	3.25	0.17	0.108	(0.465)	0.097	0.011
40	3.33	0.17	0.108	(0.463)	0.097	0.011
41	3.42	0.17	0.108	(0.461)	0.097	0.011
42	3.50	0.17	0.108	(0.459)	0.097	0.011
43	3.58	0.17	0.108	(0.457)	0.097	0.011
44	3.67	0.17	0.108	(0.456)	0.097	0.011
45	3.75	0.17	0.108	(0.454)	0.097	0.011
46	3.83	0.20	0.129	(0.452)	0.116	0.013
47	3.92	0.20	0.129	(0.450)	0.116	0.013
48	4.00	0.20	0.129	(0.448)	0.116	0.013
49	4.08	0.20	0.129	(0.446)	0.116	0.013
50	4.17	0.20	0.129	(0.444)	0.116	0.013
51	4.25	0.20	0.129	(0.442)	0.116	0.013

52	4.33	0.23	0.151	(0.440)	0.136	0.015
53	4.42	0.23	0.151	(0.438)	0.136	0.015
54	4.50	0.23	0.151	(0.437)	0.136	0.015
55	4.58	0.23	0.151	(0.435)	0.136	0.015
56	4.67	0.23	0.151	(0.433)	0.136	0.015
57	4.75	0.23	0.151	(0.431)	0.136	0.015
58	4.83	0.27	0.172	(0.429)	0.155	0.017
59	4.92	0.27	0.172	(0.427)	0.155	0.017
60	5.00	0.27	0.172	(0.425)	0.155	0.017
61	5.08	0.20	0.129	(0.424)	0.116	0.013
62	5.17	0.20	0.129	(0.422)	0.116	0.013
63	5.25	0.20	0.129	(0.420)	0.116	0.013
64	5.33	0.23	0.151	(0.418)	0.136	0.015
65	5.42	0.23	0.151	(0.416)	0.136	0.015
66	5.50	0.23	0.151	(0.414)	0.136	0.015
67	5.58	0.27	0.172	(0.413)	0.155	0.017
68	5.67	0.27	0.172	(0.411)	0.155	0.017
69	5.75	0.27	0.172	(0.409)	0.155	0.017
70	5.83	0.27	0.172	(0.407)	0.155	0.017
71	5.92	0.27	0.172	(0.405)	0.155	0.017
72	6.00	0.27	0.172	(0.404)	0.155	0.017
73	6.08	0.30	0.194	(0.402)	0.175	0.019
74	6.17	0.30	0.194	(0.400)	0.175	0.019
75	6.25	0.30	0.194	(0.398)	0.175	0.019
76	6.33	0.30	0.194	(0.396)	0.175	0.019
77	6.42	0.30	0.194	(0.395)	0.175	0.019
78	6.50	0.30	0.194	(0.393)	0.175	0.019
79	6.58	0.33	0.216	(0.391)	0.194	0.022
80	6.67	0.33	0.216	(0.389)	0.194	0.022
81	6.75	0.33	0.216	(0.388)	0.194	0.022
82	6.83	0.33	0.216	(0.386)	0.194	0.022
83	6.92	0.33	0.216	(0.384)	0.194	0.022
84	7.00	0.33	0.216	(0.382)	0.194	0.022
85	7.08	0.33	0.216	(0.381)	0.194	0.022
86	7.17	0.33	0.216	(0.379)	0.194	0.022
87	7.25	0.33	0.216	(0.377)	0.194	0.022
88	7.33	0.37	0.237	(0.375)	0.213	0.024
89	7.42	0.37	0.237	(0.374)	0.213	0.024

90	7.50	0.37	0.237	(0.372)	0.213	0.024
91	7.58	0.40	0.259	(0.370)	0.233	0.026
92	7.67	0.40	0.259	(0.369)	0.233	0.026
93	7.75	0.40	0.259	(0.367)	0.233	0.026
94	7.83	0.43	0.280	(0.365)	0.252	0.028
95	7.92	0.43	0.280	(0.363)	0.252	0.028
96	8.00	0.43	0.280	(0.362)	0.252	0.028
97	8.08	0.50	0.323	(0.360)	0.291	0.032
98	8.17	0.50	0.323	(0.358)	0.291	0.032
99	8.25	0.50	0.323	(0.357)	0.291	0.032
100	8.33	0.50	0.323	(0.355)	0.291	0.032
101	8.42	0.50	0.323	(0.353)	0.291	0.032
102	8.50	0.50	0.323	(0.352)	0.291	0.032
103	8.58	0.53	0.345	(0.350)	0.310	0.034
104	8.67	0.53	0.345	(0.348)	0.310	0.034
105	8.75	0.53	0.345	(0.347)	0.310	0.034
106	8.83	0.57	0.367	(0.345)	0.330	0.037
107	8.92	0.57	0.367	(0.344)	0.330	0.037
108	9.00	0.57	0.367	(0.342)	0.330	0.037
109	9.08	0.63	0.410	0.340	(0.369)	0.069
110	9.17	0.63	0.410	0.339	(0.369)	0.071
111	9.25	0.63	0.410	0.337	(0.369)	0.073
112	9.33	0.67	0.431	0.335	(0.388)	0.096
113	9.42	0.67	0.431	0.334	(0.388)	0.097
114	9.50	0.67	0.431	0.332	(0.388)	0.099
115	9.58	0.70	0.453	0.331	(0.407)	0.122
116	9.67	0.70	0.453	0.329	(0.407)	0.124
117	9.75	0.70	0.453	0.328	(0.407)	0.125
118	9.83	0.73	0.474	0.326	(0.427)	0.148
119	9.92	0.73	0.474	0.324	(0.427)	0.150
120	10.00	0.73	0.474	0.323	(0.427)	0.152
121	10.08	0.50	0.323	(0.321)	0.291	0.032
122	10.17	0.50	0.323	(0.320)	0.291	0.032
123	10.25	0.50	0.323	(0.318)	0.291	0.032
124	10.33	0.50	0.323	(0.317)	0.291	0.032
125	10.42	0.50	0.323	(0.315)	0.291	0.032
126	10.50	0.50	0.323	(0.314)	0.291	0.032
127	10.58	0.67	0.431	0.312	(0.388)	0.119

128	10.67	0.67	0.431	0.310	(0.388)	0.121
129	10.75	0.67	0.431	0.309	(0.388)	0.122
130	10.83	0.67	0.431	0.307	(0.388)	0.124
131	10.92	0.67	0.431	0.306	(0.388)	0.125
132	11.00	0.67	0.431	0.304	(0.388)	0.127
133	11.08	0.63	0.410	0.303	(0.369)	0.107
134	11.17	0.63	0.410	0.301	(0.369)	0.108
135	11.25	0.63	0.410	0.300	(0.369)	0.110
136	11.33	0.63	0.410	0.298	(0.369)	0.111
137	11.42	0.63	0.410	0.297	(0.369)	0.113
138	11.50	0.63	0.410	0.296	(0.369)	0.114
139	11.58	0.57	0.367	0.294	(0.330)	0.072
140	11.67	0.57	0.367	0.293	(0.330)	0.074
141	11.75	0.57	0.367	0.291	(0.330)	0.075
142	11.83	0.60	0.388	0.290	(0.349)	0.098
143	11.92	0.60	0.388	0.288	(0.349)	0.100
144	12.00	0.60	0.388	0.287	(0.349)	0.101
145	12.08	0.83	0.539	0.285	(0.485)	0.254
146	12.17	0.83	0.539	0.284	(0.485)	0.255
147	12.25	0.83	0.539	0.283	(0.485)	0.256
148	12.33	0.87	0.561	0.281	(0.505)	0.279
149	12.42	0.87	0.561	0.280	(0.505)	0.281
150	12.50	0.87	0.561	0.278	(0.505)	0.282
151	12.58	0.93	0.604	0.277	(0.543)	0.327
152	12.67	0.93	0.604	0.275	(0.543)	0.328
153	12.75	0.93	0.604	0.274	(0.543)	0.330
154	12.83	0.97	0.625	0.273	(0.563)	0.353
155	12.92	0.97	0.625	0.271	(0.563)	0.354
156	13.00	0.97	0.625	0.270	(0.563)	0.355
157	13.08	1.13	0.733	0.269	(0.660)	0.464
158	13.17	1.13	0.733	0.267	(0.660)	0.466
159	13.25	1.13	0.733	0.266	(0.660)	0.467
160	13.33	1.13	0.733	0.265	(0.660)	0.469
161	13.42	1.13	0.733	0.263	(0.660)	0.470
162	13.50	1.13	0.733	0.262	(0.660)	0.471
163	13.58	0.77	0.496	0.261	(0.446)	0.235
164	13.67	0.77	0.496	0.259	(0.446)	0.237
165	13.75	0.77	0.496	0.258	(0.446)	0.238

166	13.83	0.77	0.496	0.257	(0.446)	0.239
167	13.92	0.77	0.496	0.255	(0.446)	0.241
168	14.00	0.77	0.496	0.254	(0.446)	0.242
169	14.08	0.90	0.582	0.253	(0.524)	0.329
170	14.17	0.90	0.582	0.251	(0.524)	0.331
171	14.25	0.90	0.582	0.250	(0.524)	0.332
172	14.33	0.87	0.561	0.249	(0.505)	0.312
173	14.42	0.87	0.561	0.248	(0.505)	0.313
174	14.50	0.87	0.561	0.246	(0.505)	0.314
175	14.58	0.87	0.561	0.245	(0.505)	0.316
176	14.67	0.87	0.561	0.244	(0.505)	0.317
177	14.75	0.87	0.561	0.242	(0.505)	0.318
178	14.83	0.83	0.539	0.241	(0.485)	0.298
179	14.92	0.83	0.539	0.240	(0.485)	0.299
180	15.00	0.83	0.539	0.239	(0.485)	0.300
181	15.08	0.80	0.517	0.238	(0.466)	0.280
182	15.17	0.80	0.517	0.236	(0.466)	0.281
183	15.25	0.80	0.517	0.235	(0.466)	0.282
184	15.33	0.77	0.496	0.234	(0.446)	0.262
185	15.42	0.77	0.496	0.233	(0.446)	0.263
186	15.50	0.77	0.496	0.232	(0.446)	0.264
187	15.58	0.63	0.410	0.230	(0.369)	0.179
188	15.67	0.63	0.410	0.229	(0.369)	0.180
189	15.75	0.63	0.410	0.228	(0.369)	0.182
190	15.83	0.63	0.410	0.227	(0.369)	0.183
191	15.92	0.63	0.410	0.226	(0.369)	0.184
192	16.00	0.63	0.410	0.224	(0.369)	0.185
193	16.08	0.13	0.086	(0.223)	0.078	0.009
194	16.17	0.13	0.086	(0.222)	0.078	0.009
195	16.25	0.13	0.086	(0.221)	0.078	0.009
196	16.33	0.13	0.086	(0.220)	0.078	0.009
197	16.42	0.13	0.086	(0.219)	0.078	0.009
198	16.50	0.13	0.086	(0.218)	0.078	0.009
199	16.58	0.10	0.065	(0.217)	0.058	0.006
200	16.67	0.10	0.065	(0.215)	0.058	0.006
201	16.75	0.10	0.065	(0.214)	0.058	0.006
202	16.83	0.10	0.065	(0.213)	0.058	0.006
203	16.92	0.10	0.065	(0.212)	0.058	0.006

204	17.00	0.10	0.065	(0.211)	0.058	0.006
205	17.08	0.17	0.108	(0.210)	0.097	0.011
206	17.17	0.17	0.108	(0.209)	0.097	0.011
207	17.25	0.17	0.108	(0.208)	0.097	0.011
208	17.33	0.17	0.108	(0.207)	0.097	0.011
209	17.42	0.17	0.108	(0.206)	0.097	0.011
210	17.50	0.17	0.108	(0.205)	0.097	0.011
211	17.58	0.17	0.108	(0.204)	0.097	0.011
212	17.67	0.17	0.108	(0.203)	0.097	0.011
213	17.75	0.17	0.108	(0.202)	0.097	0.011
214	17.83	0.13	0.086	(0.201)	0.078	0.009
215	17.92	0.13	0.086	(0.200)	0.078	0.009
216	18.00	0.13	0.086	(0.199)	0.078	0.009
217	18.08	0.13	0.086	(0.198)	0.078	0.009
218	18.17	0.13	0.086	(0.197)	0.078	0.009
219	18.25	0.13	0.086	(0.196)	0.078	0.009
220	18.33	0.13	0.086	(0.195)	0.078	0.009
221	18.42	0.13	0.086	(0.194)	0.078	0.009
222	18.50	0.13	0.086	(0.193)	0.078	0.009
223	18.58	0.10	0.065	(0.192)	0.058	0.006
224	18.67	0.10	0.065	(0.191)	0.058	0.006
225	18.75	0.10	0.065	(0.190)	0.058	0.006
226	18.83	0.07	0.043	(0.189)	0.039	0.004
227	18.92	0.07	0.043	(0.188)	0.039	0.004
228	19.00	0.07	0.043	(0.188)	0.039	0.004
229	19.08	0.10	0.065	(0.187)	0.058	0.006
230	19.17	0.10	0.065	(0.186)	0.058	0.006
231	19.25	0.10	0.065	(0.185)	0.058	0.006
232	19.33	0.13	0.086	(0.184)	0.078	0.009
233	19.42	0.13	0.086	(0.183)	0.078	0.009
234	19.50	0.13	0.086	(0.182)	0.078	0.009
235	19.58	0.10	0.065	(0.182)	0.058	0.006
236	19.67	0.10	0.065	(0.181)	0.058	0.006
237	19.75	0.10	0.065	(0.180)	0.058	0.006
238	19.83	0.07	0.043	(0.179)	0.039	0.004
239	19.92	0.07	0.043	(0.178)	0.039	0.004
240	20.00	0.07	0.043	(0.178)	0.039	0.004
241	20.08	0.10	0.065	(0.177)	0.058	0.006

242	20.17	0.10	0.065	(0.176)	0.058	0.006
243	20.25	0.10	0.065	(0.175)	0.058	0.006
244	20.33	0.10	0.065	(0.174)	0.058	0.006
245	20.42	0.10	0.065	(0.174)	0.058	0.006
246	20.50	0.10	0.065	(0.173)	0.058	0.006
247	20.58	0.10	0.065	(0.172)	0.058	0.006
248	20.67	0.10	0.065	(0.171)	0.058	0.006
249	20.75	0.10	0.065	(0.171)	0.058	0.006
250	20.83	0.07	0.043	(0.170)	0.039	0.004
251	20.92	0.07	0.043	(0.169)	0.039	0.004
252	21.00	0.07	0.043	(0.169)	0.039	0.004
253	21.08	0.10	0.065	(0.168)	0.058	0.006
254	21.17	0.10	0.065	(0.167)	0.058	0.006
255	21.25	0.10	0.065	(0.167)	0.058	0.006
256	21.33	0.07	0.043	(0.166)	0.039	0.004
257	21.42	0.07	0.043	(0.165)	0.039	0.004
258	21.50	0.07	0.043	(0.165)	0.039	0.004
259	21.58	0.10	0.065	(0.164)	0.058	0.006
260	21.67	0.10	0.065	(0.164)	0.058	0.006
261	21.75	0.10	0.065	(0.163)	0.058	0.006
262	21.83	0.07	0.043	(0.163)	0.039	0.004
263	21.92	0.07	0.043	(0.162)	0.039	0.004
264	22.00	0.07	0.043	(0.161)	0.039	0.004
265	22.08	0.10	0.065	(0.161)	0.058	0.006
266	22.17	0.10	0.065	(0.160)	0.058	0.006
267	22.25	0.10	0.065	(0.160)	0.058	0.006
268	22.33	0.07	0.043	(0.159)	0.039	0.004
269	22.42	0.07	0.043	(0.159)	0.039	0.004
270	22.50	0.07	0.043	(0.158)	0.039	0.004
271	22.58	0.07	0.043	(0.158)	0.039	0.004
272	22.67	0.07	0.043	(0.157)	0.039	0.004
273	22.75	0.07	0.043	(0.157)	0.039	0.004
274	22.83	0.07	0.043	(0.157)	0.039	0.004
275	22.92	0.07	0.043	(0.156)	0.039	0.004
276	23.00	0.07	0.043	(0.156)	0.039	0.004
277	23.08	0.07	0.043	(0.155)	0.039	0.004
278	23.17	0.07	0.043	(0.155)	0.039	0.004
279	23.25	0.07	0.043	(0.155)	0.039	0.004

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280  23.33     0.07      0.043       (  0.155)       0.039        0.004
281  23.42     0.07      0.043       (  0.154)       0.039        0.004
282  23.50     0.07      0.043       (  0.154)       0.039        0.004
283  23.58     0.07      0.043       (  0.154)       0.039        0.004
284  23.67     0.07      0.043       (  0.153)       0.039        0.004
285  23.75     0.07      0.043       (  0.153)       0.039        0.004
286  23.83     0.07      0.043       (  0.153)       0.039        0.004
287  23.92     0.07      0.043       (  0.153)       0.039        0.004
288  24.00     0.07      0.043       (  0.153)       0.039        0.004
           (Loss Rate Not Used)
    Sum =     100.0                                  Sum =    20.2
     Flood volume = Effective rainfall      1.68(In)
      times area       0.5(Ac.)/[(In)/(Ft.)] =       0.1(Ac.Ft)
     Total soil loss =      3.71(In)
     Total soil loss =     0.167(Ac.Ft)
     Total rainfall =      5.39(In)
     Flood volume =        3298.8 Cubic Feet
     Total soil loss =        7266.7 Cubic Feet
     ---------------------------------------------------------------------
      Peak flow rate of this hydrograph =      0.257(CFS)
     ---------------------------------------------------------------------
     +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                         24 - H O U R    S T O R M
                    R u n o f f      H y d r o g r a p h
     ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

     ---------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
 ---------------------------------------------------------------------
   0+ 5       0.0000      0.00  Q         |         |         |         |
   0+10       0.0000      0.00  Q         |         |         |         |
   0+15       0.0000      0.00  Q         |         |         |         |
   0+20       0.0001      0.00  Q         |         |         |         |
   0+25       0.0001      0.00  Q         |         |         |         |
   0+30       0.0001      0.00  Q         |         |         |         |
   0+35       0.0001      0.00  Q         |         |         |         |
   0+40       0.0002      0.00  Q         |         |         |         |
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0+45	0.0002	0.00	Q				
0+50	0.0002	0.00	Q				
0+55	0.0003	0.00	Q				
1+ 0	0.0003	0.00	Q				
1+ 5	0.0003	0.00	Q				
1+10	0.0003	0.00	Q				
1+15	0.0004	0.00	Q				
1+20	0.0004	0.00	Q				
1+25	0.0004	0.00	Q				
1+30	0.0004	0.00	Q				
1+35	0.0005	0.00	Q				
1+40	0.0005	0.00	Q				
1+45	0.0005	0.00	Q				
1+50	0.0005	0.00	Q				
1+55	0.0006	0.00	Q				
2+ 0	0.0006	0.00	Q				
2+ 5	0.0006	0.00	Q				
2+10	0.0007	0.00	Q				
2+15	0.0007	0.00	Q				
2+20	0.0007	0.00	Q				
2+25	0.0008	0.00	Q				
2+30	0.0008	0.00	Q				
2+35	0.0008	0.01	Q				
2+40	0.0009	0.01	Q				
2+45	0.0009	0.01	Q				
2+50	0.0010	0.01	Q				
2+55	0.0010	0.01	Q				
3+ 0	0.0010	0.01	Q				
3+ 5	0.0011	0.01	Q				
3+10	0.0011	0.01	Q				
3+15	0.0012	0.01	Q				
3+20	0.0012	0.01	Q				
3+25	0.0012	0.01	Q				
3+30	0.0013	0.01	Q				
3+35	0.0013	0.01	Q				
3+40	0.0014	0.01	Q				
3+45	0.0014	0.01	Q				
3+50	0.0015	0.01	Q				

3+55	0.0015	0.01	Q				
4+ 0	0.0016	0.01	Q				
4+ 5	0.0016	0.01	Q				
4+10	0.0016	0.01	Q				
4+15	0.0017	0.01	Q				
4+20	0.0018	0.01	Q				
4+25	0.0018	0.01	Q				
4+30	0.0019	0.01	Q				
4+35	0.0019	0.01	QV				
4+40	0.0020	0.01	QV				
4+45	0.0020	0.01	QV				
4+50	0.0021	0.01	QV				
4+55	0.0022	0.01	QV				
5+ 0	0.0022	0.01	QV				
5+ 5	0.0023	0.01	QV				
5+10	0.0023	0.01	QV				
5+15	0.0024	0.01	QV				
5+20	0.0024	0.01	QV				
5+25	0.0025	0.01	QV				
5+30	0.0025	0.01	QV				
5+35	0.0026	0.01	QV				
5+40	0.0027	0.01	QV				
5+45	0.0027	0.01	QV				
5+50	0.0028	0.01	QV				
5+55	0.0029	0.01	QV				
6+ 0	0.0029	0.01	QV				
6+ 5	0.0030	0.01	QV				
6+10	0.0031	0.01	QV				
6+15	0.0032	0.01	QV				
6+20	0.0032	0.01	QV				
6+25	0.0033	0.01	QV				
6+30	0.0034	0.01	QV				
6+35	0.0035	0.01	QV				
6+40	0.0035	0.01	QV				
6+45	0.0036	0.01	QV				
6+50	0.0037	0.01	QV				
6+55	0.0038	0.01	QV				
7+ 0	0.0039	0.01	Q V				

7+ 5	0.0039	0.01	Q V	|	|	|	|
7+10	0.0040	0.01	Q V	|	|	|	|
7+15	0.0041	0.01	Q V	|	|	|	|
7+20	0.0042	0.01	Q V	|	|	|	|
7+25	0.0043	0.01	Q V	|	|	|	|
7+30	0.0044	0.01	Q V	|	|	|	|
7+35	0.0045	0.01	Q V	|	|	|	|
7+40	0.0046	0.01	Q V	|	|	|	|
7+45	0.0047	0.01	Q V	|	|	|	|
7+50	0.0048	0.02	Q V	|	|	|	|
7+55	0.0049	0.02	Q V	|	|	|	|
8+ 0	0.0050	0.02	Q V	|	|	|	|
8+ 5	0.0051	0.02	Q V	|	|	|	|
8+10	0.0052	0.02	Q V	|	|	|	|
8+15	0.0053	0.02	Q V	|	|	|	|
8+20	0.0055	0.02	Q V	|	|	|	|
8+25	0.0056	0.02	Q V	|	|	|	|
8+30	0.0057	0.02	Q V	|	|	|	|
8+35	0.0058	0.02	Q V	|	|	|	|
8+40	0.0060	0.02	Q V	|	|	|	|
8+45	0.0061	0.02	Q V	|	|	|	|
8+50	0.0062	0.02	Q V	|	|	|	|
8+55	0.0064	0.02	Q V	|	|	|	|
9+ 0	0.0065	0.02	Q V	|	|	|	|
9+ 5	0.0068	0.04	Q V	|	|	|	|
9+10	0.0070	0.04	Q V	|	|	|	|
9+15	0.0073	0.04	Q V	|	|	|	|
9+20	0.0077	0.05	Q V	|	|	|	|
9+25	0.0080	0.05	Q V	|	|	|	|
9+30	0.0084	0.05	Q V	|	|	|	|
9+35	0.0089	0.07	Q V	|	|	|	|
9+40	0.0093	0.07	Q V	|	|	|	|
9+45	0.0098	0.07	Q V	|	|	|	|
9+50	0.0103	0.08	Q V	|	|	|	|
9+55	0.0109	0.08	Q V	|	|	|	|
10+ 0	0.0115	0.08	Q V	|	|	|	|
10+ 5	0.0116	0.02	Q V	|	|	|	|
10+10	0.0117	0.02	Q V	|	|	|	|

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10+15       0.0118      0.02  Q     V   |          |          |          |
10+20       0.0120      0.02  Q     V   |          |          |          |
10+25       0.0121      0.02  Q     V   |          |          |          |
10+30       0.0122      0.02  Q     V   |          |          |          |
10+35       0.0126      0.06  Q     V   |          |          |          |
10+40       0.0131      0.07  Q     V   |          |          |          |
10+45       0.0136      0.07  Q      V  |          |          |          |
10+50       0.0140      0.07  Q      V  |          |          |          |
10+55       0.0145      0.07  Q      V  |          |          |          |
11+ 0       0.0150      0.07  Q      V  |          |          |          |
11+ 5       0.0154      0.06  Q       V |          |          |          |
11+10       0.0158      0.06  Q       V |          |          |          |
11+15       0.0162      0.06  Q       V |          |          |          |
11+20       0.0166      0.06  Q       V |          |          |          |
11+25       0.0170      0.06  Q       V |          |          |          |
11+30       0.0175      0.06  Q        V|          |          |          |
11+35       0.0177      0.04  Q        V|          |          |          |
11+40       0.0180      0.04  Q        V|          |          |          |
11+45       0.0183      0.04  Q        V|          |          |          |
11+50       0.0187      0.05  Q        V|          |          |          |
11+55       0.0190      0.05  Q         V          |          |          |
12+ 0       0.0194      0.06  Q         V          |          |          |
12+ 5       0.0204      0.14  Q         V          |          |          |
12+10       0.0213      0.14  Q         |V         |          |          |
12+15       0.0223      0.14  Q         |V         |          |          |
12+20       0.0233      0.15  Q         | V        |          |          |
12+25       0.0244      0.15  Q         | V        |          |          |
12+30       0.0254      0.15  Q         |  V       |          |          |
12+35       0.0267      0.18  Q         |   V      |          |          |
12+40       0.0279      0.18  Q         |   V      |          |          |
12+45       0.0291      0.18  Q         |    V     |          |          |
12+50       0.0304      0.19  Q         |     V    |          |          |
12+55       0.0318      0.19  Q         |     V    |          |          |
13+ 0       0.0331      0.19  Q         |      V   |          |          |
13+ 5       0.0349      0.25  |Q        |       V  |          |          |
13+10       0.0366      0.25  |Q        |        V |          |          |
13+15       0.0383      0.25  |Q        |         V|          |          |
13+20       0.0401      0.26  |Q        |          |V         |          |
```

```
13+25       0.0419      0.26  |Q        |          | V       |          |
13+30       0.0436      0.26  |Q        |          |  V      |          |
13+35       0.0445      0.13  Q         |          |  V      |          |
13+40       0.0454      0.13  Q         |          |  V      |          |
13+45       0.0463      0.13  Q         |          |   V     |          |
13+50       0.0472      0.13  Q         |          |   V     |          |
13+55       0.0481      0.13  Q         |          |    V    |          |
14+ 0       0.0490      0.13  Q         |          |    V    |          |
14+ 5       0.0502      0.18  Q         |          |     V   |          |
14+10       0.0515      0.18  Q         |          |      V  |          |
14+15       0.0527      0.18  Q         |          |      V  |          |
14+20       0.0539      0.17  Q         |          |       V |          |
14+25       0.0551      0.17  Q         |          |        V|          |
14+30       0.0562      0.17  Q         |          |        V|          |
14+35       0.0574      0.17  Q         |          |         V          |
14+40       0.0586      0.17  Q         |          |         V          |
14+45       0.0598      0.17  Q         |          |         |V         |
14+50       0.0609      0.16  Q         |          |         | V        |
14+55       0.0621      0.16  Q         |          |         | V        |
15+ 0       0.0632      0.16  Q         |          |         |  V       |
15+ 5       0.0642      0.15  Q         |          |         |  V       |
15+10       0.0653      0.15  Q         |          |         |   V      |
15+15       0.0663      0.15  Q         |          |         |    V     |
15+20       0.0673      0.14  Q         |          |         |    V     |
15+25       0.0683      0.14  Q         |          |         |     V    |
15+30       0.0693      0.14  Q         |          |         |     V    |
15+35       0.0700      0.10  Q         |          |         |     V    |
15+40       0.0706      0.10  Q         |          |         |      V   |
15+45       0.0713      0.10  Q         |          |         |      V   |
15+50       0.0720      0.10  Q         |          |         |       V  |
15+55       0.0727      0.10  Q         |          |         |       V  |
16+ 0       0.0734      0.10  Q         |          |         |       V  |
16+ 5       0.0734      0.00  Q         |          |         |       V  |
16+10       0.0735      0.00  Q         |          |         |       V  |
16+15       0.0735      0.00  Q         |          |         |       V  |
16+20       0.0735      0.00  Q         |          |         |       V  |
16+25       0.0736      0.00  Q         |          |         |       V  |
16+30       0.0736      0.00  Q         |          |         |       V  |
```

16+35	0.0736	0.00	Q	|	|	|	V |
16+40	0.0736	0.00	Q	|	|	|	V |
16+45	0.0737	0.00	Q	|	|	|	V |
16+50	0.0737	0.00	Q	|	|	|	V |
16+55	0.0737	0.00	Q	|	|	|	V |
17+ 0	0.0737	0.00	Q	|	|	|	V |
17+ 5	0.0738	0.01	Q	|	|	|	V |
17+10	0.0738	0.01	Q	|	|	|	V |
17+15	0.0739	0.01	Q	|	|	|	V|
17+20	0.0739	0.01	Q	|	|	|	V|
17+25	0.0739	0.01	Q	|	|	|	V|
17+30	0.0740	0.01	Q	|	|	|	V|
17+35	0.0740	0.01	Q	|	|	|	V|
17+40	0.0741	0.01	Q	|	|	|	V|
17+45	0.0741	0.01	Q	|	|	|	V|
17+50	0.0741	0.00	Q	|	|	|	V|
17+55	0.0742	0.00	Q	|	|	|	V|
18+ 0	0.0742	0.00	Q	|	|	|	V|
18+ 5	0.0742	0.00	Q	|	|	|	V|
18+10	0.0743	0.00	Q	|	|	|	V|
18+15	0.0743	0.00	Q	|	|	|	V|
18+20	0.0743	0.00	Q	|	|	|	V|
18+25	0.0744	0.00	Q	|	|	|	V|
18+30	0.0744	0.00	Q	|	|	|	V|
18+35	0.0744	0.00	Q	|	|	|	V|
18+40	0.0744	0.00	Q	|	|	|	V|
18+45	0.0745	0.00	Q	|	|	|	V|
18+50	0.0745	0.00	Q	|	|	|	V|
18+55	0.0745	0.00	Q	|	|	|	V|
19+ 0	0.0745	0.00	Q	|	|	|	V|
19+ 5	0.0745	0.00	Q	|	|	|	V|
19+10	0.0746	0.00	Q	|	|	|	V|
19+15	0.0746	0.00	Q	|	|	|	V|
19+20	0.0746	0.00	Q	|	|	|	V|
19+25	0.0747	0.00	Q	|	|	|	V|
19+30	0.0747	0.00	Q	|	|	|	V|
19+35	0.0747	0.00	Q	|	|	|	V|
19+40	0.0747	0.00	Q	|	|	|	V|

19+45	0.0748	0.00	Q	|	|	|	V|
19+50	0.0748	0.00	Q	|	|	|	V|
19+55	0.0748	0.00	Q	|	|	|	V|
20+ 0	0.0748	0.00	Q	|	|	|	V|
20+ 5	0.0748	0.00	Q	|	|	|	V|
20+10	0.0749	0.00	Q	|	|	|	V|
20+15	0.0749	0.00	Q	|	|	|	V|
20+20	0.0749	0.00	Q	|	|	|	V|
20+25	0.0749	0.00	Q	|	|	|	V|
20+30	0.0750	0.00	Q	|	|	|	V|
20+35	0.0750	0.00	Q	|	|	|	V|
20+40	0.0750	0.00	Q	|	|	|	V|
20+45	0.0750	0.00	Q	|	|	|	V|
20+50	0.0750	0.00	Q	|	|	|	V|
20+55	0.0751	0.00	Q	|	|	|	V|
21+ 0	0.0751	0.00	Q	|	|	|	V|
21+ 5	0.0751	0.00	Q	|	|	|	V|
21+10	0.0751	0.00	Q	|	|	|	V|
21+15	0.0751	0.00	Q	|	|	|	V|
21+20	0.0752	0.00	Q	|	|	|	V|
21+25	0.0752	0.00	Q	|	|	|	V|
21+30	0.0752	0.00	Q	|	|	|	V|
21+35	0.0752	0.00	Q	|	|	|	V|
21+40	0.0752	0.00	Q	|	|	|	V|
21+45	0.0753	0.00	Q	|	|	|	V|
21+50	0.0753	0.00	Q	|	|	|	V|
21+55	0.0753	0.00	Q	|	|	|	V|
22+ 0	0.0753	0.00	Q	|	|	|	V|
22+ 5	0.0753	0.00	Q	|	|	|	V|
22+10	0.0754	0.00	Q	|	|	|	V|
22+15	0.0754	0.00	Q	|	|	|	V|
22+20	0.0754	0.00	Q	|	|	|	V|
22+25	0.0754	0.00	Q	|	|	|	V|
22+30	0.0754	0.00	Q	|	|	|	V|
22+35	0.0755	0.00	Q	|	|	|	V|
22+40	0.0755	0.00	Q	|	|	|	V|
22+45	0.0755	0.00	Q	|	|	|	V|
22+50	0.0755	0.00	Q	|	|	|	V|

```
   22+55       0.0755      0.00  Q          |          |          |         V|
   23+ 0       0.0755      0.00  Q          |          |          |         V|
   23+ 5       0.0756      0.00  Q          |          |          |         V|
   23+10       0.0756      0.00  Q          |          |          |         V|
   23+15       0.0756      0.00  Q          |          |          |         V|
   23+20       0.0756      0.00  Q          |          |          |         V|
   23+25       0.0756      0.00  Q          |          |          |         V|
   23+30       0.0756      0.00  Q          |          |          |         V|
   23+35       0.0756      0.00  Q          |          |          |         V|
   23+40       0.0757      0.00  Q          |          |          |         V|
   23+45       0.0757      0.00  Q          |          |          |         V|
   23+50       0.0757      0.00  Q          |          |          |         V|
   23+55       0.0757      0.00  Q          |          |          |         V|
   24+ 0       0.0757      0.00  Q          |          |          |          V
-------------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 2- 100 YR, 1-hr

Drainage Area = 0.43(Ac.) = 0.001 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 0.43(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 60.00(Ft.)
Length along longest watercourse measured to centroid = 30.00(Ft.)
Length along longest watercourse = 0.011 Mi.
Length along longest watercourse measured to centroid = 0.006 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 88.0000 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.004 Hr.
Lag time =     0.24 Min.
25% of lag time =     0.06 Min.
40% of lag time =     0.09 Min.
Unit time =     5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.43             0.51                 0.22

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.43             1.61                 0.69

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.514(In)
Area Averaged 100-Year Rainfall =    1.610(In)

Point rain (area averaged) =    1.610(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    1.610(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     0.430           69.00          0.200
 Total Area Entered =      0.43(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306        1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

Slope of intensity-duration curve for a 1 hour storm =0.5500

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	2119.172	100.000	0.433
		Sum = 100.000	Sum= 0.433

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	3.30	0.638	0.306	(0.574)	0.332
2	0.17	4.20	0.811	0.306	(0.730)	0.506
3	0.25	4.40	0.850	0.306	(0.765)	0.544
4	0.33	4.80	0.927	0.306	(0.835)	0.622
5	0.42	5.20	1.005	0.306		

U n i t H y d r o g r a p h A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 2- 100 YR, 3-hr

Drainage Area = 0.43(Ac.) = 0.001 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 0.43(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 60.00(Ft.)
Length along longest watercourse measured to centroid = 30.00(Ft.)
Length along longest watercourse = 0.011 Mi.
Length along longest watercourse measured to centroid = 0.006 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 88.0000 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.004 Hr.
Lag time =     0.24 Min.
25% of lag time =     0.06 Min.
40% of lag time =     0.09 Min.
Unit time =     5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.43             0.86                 0.37

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.43             2.25                 0.97

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.864(In)
Area Averaged 100-Year Rainfall =    2.250(In)

Point rain (area averaged) =    2.250(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.250(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     0.430           69.00          0.200
 Total Area Entered =      0.43(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306       1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	2119.172	100.000	0.433
		Sum = 100.000	Sum= 0.433

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.351	0.306	(0.316)	0.045
2	0.17	1.30	0.351	0.306	(0.316)	0.045
3	0.25	1.10	0.297	(0.306)	0.267	0.030
4	0.33	1.50	0.405	0.306	(0.364)	0.099
5	0.42	1.50	0.405	0.306	(0.364)	0.099
6	0.50	1.80	0.486	0.306	(0.437)	0.180
7	0.58	1.50	0.405	0.306	(0.364)	0.099
8	0.67	1.80	0.486	0.306	(0.437)	0.180
9	0.75	1.80	0.486	0.306	(0.437)	0.180
10	0.83	1.50	0.405	0.306	(0.364)	0.099
11	0.92	1.60	0.432	0.306	(0.389)	0.126
12	1.00	1.80	0.486	0.306	(0.437)	0.180
13	1.08	2.20	0.594	0.306	(0.535)	0.288

```
14   1.17     2.20      0.594          0.306    (  0.535)         0.288
15   1.25     2.20      0.594          0.306    (  0.535)         0.288
16   1.33     2.00      0.540          0.306    (  0.486)         0.234
17   1.42     2.60      0.702          0.306    (  0.632)         0.396
18   1.50     2.70      0.729          0.306    (  0.656)         0.423
19   1.58     2.40      0.648          0.306    (  0.583)         0.342
20   1.67     2.70      0.729          0.306    (  0.656)         0.423
21   1.75     3.30      0.891          0.306    (  0.802)         0.585
22   1.83     3.10      0.837          0.306    (  0.753)         0.531
23   1.92     2.90      0.783          0.306    (  0.705)         0.477
24   2.00     3.00      0.810          0.306    (  0.729)         0.504
25   2.08     3.10      0.837          0.306    (  0.753)         0.531
26   2.17     4.20      1.134          0.306    (  1.021)         0.828
27   2.25     5.00      1.350          0.306    (  1.215)         1.044
28   2.33     3.50      0.945          0.306    (  0.850)         0.639
29   2.42     6.80      1.836          0.306    (  1.652)         1.530
30   2.50     7.30      1.971          0.306    (  1.774)         1.665
31   2.58     8.20      2.214          0.306    (  1.993)         1.908
32   2.67     5.90      1.593          0.306    (  1.434)         1.287
33   2.75     2.00      0.540          0.306    (  0.486)         0.234
34   2.83     1.80      0.486          0.306    (  0.437)         0.180
35   2.92     1.80      0.486          0.306    (  0.437)         0.180
36   3.00     0.60      0.162       (  0.306)       0.146         0.016
          (Loss Rate Not Used)
   Sum =     100.0                                    Sum =    16.2
    Flood volume = Effective rainfall      1.35(In)
     times area       0.4(Ac.)/[(In)/(Ft.)] =       0.0(Ac.Ft)
    Total soil loss =      0.90(In)
    Total soil loss =     0.032(Ac.Ft)
    Total rainfall =      2.25(In)
    Flood volume =        2106.3 Cubic Feet
    Total soil loss =        1405.7 Cubic Feet
    ---------------------------------------------------------------------
     Peak flow rate of this hydrograph =      0.827(CFS)
    ---------------------------------------------------------------------
    +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        3 - H O U R    S T O R M
                    R u n o f f      H y d r o g r a p h
```

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0001	0.02	Q				
0+10	0.0003	0.02	Q				
0+15	0.0004	0.01	Q				
0+20	0.0007	0.04	Q				
0+25	0.0010	0.04	Q				
0+30	0.0015	0.08	QV				
0+35	0.0018	0.04	QV				
0+40	0.0023	0.08	QV				
0+45	0.0029	0.08	Q V				
0+50	0.0032	0.04	Q V				
0+55	0.0035	0.05	Q V				

U n i t H y d r o g r a p h A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 2- 100 YR, 6-hr

Drainage Area = 0.43(Ac.) = 0.001 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 0.43(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 60.00(Ft.)
Length along longest watercourse measured to centroid = 30.00(Ft.)
Length along longest watercourse = 0.011 Mi.
Length along longest watercourse measured to centroid = 0.006 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 88.0000 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.004 Hr.
Lag time =     0.24 Min.
25% of lag time =     0.06 Min.
40% of lag time =     0.09 Min.
Unit time =     5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.43             1.20                 0.52

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.43             2.99                 1.29

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.200(In)
Area Averaged 100-Year Rainfall =    2.990(In)

Point rain (area averaged) =    2.990(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.990(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     0.430           69.00          0.200
 Total Area Entered =      0.43(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306        1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	2119.172	100.000	0.433
		Sum = 100.000	Sum= 0.433

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.179	(0.306)	0.161	0.018
2	0.17	0.60	0.215	(0.306)	0.194	0.022
3	0.25	0.60	0.215	(0.306)	0.194	0.022
4	0.33	0.60	0.215	(0.306)	0.194	0.022
5	0.42	0.60	0.215	(0.306)	0.194	0.022
6	0.50	0.70	0.251	(0.306)	0.226	0.025
7	0.58	0.70	0.251	(0.306)	0.226	0.025
8	0.67	0.70	0.251	(0.306)	0.226	0.025
9	0.75	0.70	0.251	(0.306)	0.226	0.025
10	0.83	0.70	0.251	(0.306)	0.226	0.025
11	0.92	0.70	0.251	(0.306)	0.226	0.025
12	1.00	0.80	0.287	(0.306)	0.258	0.029
13	1.08	0.80	0.287	(0.306)	0.258	0.029

14	1.17	0.80	0.287	(0.306)	0.258	0.029
15	1.25	0.80	0.287	(0.306)	0.258	0.029
16	1.33	0.80	0.287	(0.306)	0.258	0.029
17	1.42	0.80	0.287	(0.306)	0.258	0.029
18	1.50	0.80	0.287	(0.306)	0.258	0.029
19	1.58	0.80	0.287	(0.306)	0.258	0.029
20	1.67	0.80	0.287	(0.306)	0.258	0.029
21	1.75	0.80	0.287	(0.306)	0.258	0.029
22	1.83	0.80	0.287	(0.306)	0.258	0.029
23	1.92	0.80	0.287	(0.306)	0.258	0.029
24	2.00	0.90	0.323	(0.306)	0.291	0.032
25	2.08	0.80	0.287	(0.306)	0.258	0.029
26	2.17	0.90	0.323	(0.306)	0.291	0.032
27	2.25	0.90	0.323	(0.306)	0.291	0.032
28	2.33	0.90	0.323	(0.306)	0.291	0.032
29	2.42	0.90	0.323	(0.306)	0.291	0.032
30	2.50	0.90	0.323	(0.306)	0.291	0.032
31	2.58	0.90	0.323	(0.306)	0.291	0.032
32	2.67	0.90	0.323	(0.306)	0.291	0.032
33	2.75	1.00	0.359	0.306	(0.323)	0.053
34	2.83	1.00	0.359	0.306	(0.323)	0.053
35	2.92	1.00	0.359	0.306	(0.323)	0.053
36	3.00	1.00	0.359	0.306	(0.323)	0.053
37	3.08	1.00	0.359	0.306	(0.323)	0.053
38	3.17	1.10	0.395	0.306	(0.355)	0.089
39	3.25	1.10	0.395	0.306	(0.355)	0.089
40	3.33	1.10	0.395	0.306	(0.355)	0.089
41	3.42	1.20	0.431	0.306	(0.388)	0.125
42	3.50	1.30	0.466	0.306	(0.420)	0.161
43	3.58	1.40	0.502	0.306	(0.452)	0.197
44	3.67	1.40	0.502	0.306	(0.452)	0.197
45	3.75	1.50	0.538	0.306	(0.484)	0.233
46	3.83	1.50	0.538	0.306	(0.484)	0.233
47	3.92	1.60	0.574	0.306	(0.517)	0.268
48	4.00	1.60	0.574	0.306	(0.517)	0.268
49	4.08	1.70	0.610	0.306	(0.549)	0.304
50	4.17	1.80	0.646	0.306	(0.581)	0.340
51	4.25	1.90	0.682	0.306	(0.614)	0.376

```
52   4.33     2.00      0.718          0.306    (  0.646)        0.412
53   4.42     2.10      0.753          0.306    (  0.678)        0.448
54   4.50     2.10      0.753          0.306    (  0.678)        0.448
55   4.58     2.20      0.789          0.306    (  0.710)        0.484
56   4.67     2.30      0.825          0.306    (  0.743)        0.520
57   4.75     2.40      0.861          0.306    (  0.775)        0.555
58   4.83     2.40      0.861          0.306    (  0.775)        0.555
59   4.92     2.50      0.897          0.306    (  0.807)        0.591
60   5.00     2.60      0.933          0.306    (  0.840)        0.627
61   5.08     3.10      1.112          0.306    (  1.001)        0.807
62   5.17     3.60      1.292          0.306    (  1.163)        0.986
63   5.25     3.90      1.399          0.306    (  1.259)        1.094
64   5.33     4.20      1.507          0.306    (  1.356)        1.201
65   5.42     4.70      1.686          0.306    (  1.518)        1.381
66   5.50     5.60      2.009          0.306    (  1.808)        1.704
67   5.58     1.90      0.682          0.306    (  0.614)        0.376
68   5.67     0.90      0.323       (  0.306)       0.291        0.032
69   5.75     0.60      0.215       (  0.306)       0.194        0.022
70   5.83     0.50      0.179       (  0.306)       0.161        0.018
71   5.92     0.30      0.108       (  0.306)       0.097        0.011
72   6.00     0.20      0.072       (  0.306)       0.065        0.007
          (Loss Rate Not Used)
   Sum =     100.0                                    Sum =    16.4
    Flood volume = Effective rainfall      1.37(In)
     times area       0.4(Ac.)/[(In)/(Ft.)] =       0.0(Ac.Ft)
    Total soil loss =      1.62(In)
    Total soil loss =     0.058(Ac.Ft)
    Total rainfall =      2.99(In)
    Flood volume =        2132.9 Cubic Feet
    Total soil loss =        2534.2 Cubic Feet
    ---------------------------------------------------------------------
     Peak flow rate of this hydrograph =      0.739(CFS)
    ---------------------------------------------------------------------
    +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        6 - H O U R    S T O R M
                    R u n o f f      H y d r o g r a p h
    ---------------------------------------------------------------------
                Hydrograph in   5   Minute intervals ((CFS))
```

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0001	0.01	Q				
0+10	0.0001	0.01	Q				
0+15	0.0002	0.01	Q				
0+20	0.0002	0.01	Q				
0+25	0.0003	0.01	Q				
0+30	0.0004	0.01	Q				
0+35	0.0005	0.01	Q				
0+40	0.0005	0.01	Q				
0+45	0.0006	0.01	Q				
0+50	0.0007	0.01	Q				
0+55	0.0008	0.01	Q				
1+ 0	0.0008	0.01	Q				
1+ 5	0.0009	0.01	Q				
1+10	0.0010	0.01	Q				
1+15	0.0011	0.01	Q				
1+20	0.0012	0.01	Q				
1+25	0.0013	0.01	QV				
1+30	0.0014	0.01	QV				
1+35	0.0014	0.01	QV				
1+40	0.0015	0.01	QV				
1+45	0.0016	0.01	QV				
1+50	0.0017	0.01	QV				
1+55	0.0018	0.01	QV				
2+ 0	0.0019	0.01	QV				
2+ 5	0.0020	0.01	QV				
2+10	0.0021	0.01	QV				
2+15	0.0022	0.01	QV				
2+20	0.0023	0.01	QV				
2+25	0.0024	0.01	QV				
2+30	0.0025	0.01	Q V				
2+35	0.0025						

U n i t H y d r o g r a p h A n a l y s i s

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Study date 01/03/23 File: VOLT224100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 2- 100 YR, 24-hr

Drainage Area = 0.43(Ac.) = 0.001 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 0.43(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 60.00(Ft.)
Length along longest watercourse measured to centroid = 30.00(Ft.)
Length along longest watercourse = 0.011 Mi.
Length along longest watercourse measured to centroid = 0.006 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 88.0000 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.004 Hr.
Lag time =     0.24 Min.
25% of lag time =     0.06 Min.
40% of lag time =     0.09 Min.
Unit time =     5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.43             2.06                  0.89

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.43             5.39                  2.32

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    2.060(In)
Area Averaged 100-Year Rainfall =    5.390(In)

Point rain (area averaged) =    5.390(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    5.390(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     0.430           69.00         0.200
 Total Area Entered =      0.43(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306       1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	2119.172	100.000	0.433
		Sum = 100.000	Sum= 0.433

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.043	(0.542)	0.039	0.004
2	0.17	0.07	0.043	(0.540)	0.039	0.004
3	0.25	0.07	0.043	(0.538)	0.039	0.004
4	0.33	0.10	0.065	(0.536)	0.058	0.006
5	0.42	0.10	0.065	(0.534)	0.058	0.006
6	0.50	0.10	0.065	(0.531)	0.058	0.006
7	0.58	0.10	0.065	(0.529)	0.058	0.006
8	0.67	0.10	0.065	(0.527)	0.058	0.006
9	0.75	0.10	0.065	(0.525)	0.058	0.006
10	0.83	0.13	0.086	(0.523)	0.078	0.009
11	0.92	0.13	0.086	(0.521)	0.078	0.009
12	1.00	0.13	0.086	(0.519)	0.078	0.009
13	1.08	0.10	0.065	(0.517)	0.058	0.006

14	1.17	0.10	0.065	(0.515)	0.058	0.006
15	1.25	0.10	0.065	(0.513)	0.058	0.006
16	1.33	0.10	0.065	(0.511)	0.058	0.006
17	1.42	0.10	0.065	(0.509)	0.058	0.006
18	1.50	0.10	0.065	(0.507)	0.058	0.006
19	1.58	0.10	0.065	(0.505)	0.058	0.006
20	1.67	0.10	0.065	(0.503)	0.058	0.006
21	1.75	0.10	0.065	(0.501)	0.058	0.006
22	1.83	0.13	0.086	(0.499)	0.078	0.009
23	1.92	0.13	0.086	(0.497)	0.078	0.009
24	2.00	0.13	0.086	(0.495)	0.078	0.009
25	2.08	0.13	0.086	(0.493)	0.078	0.009
26	2.17	0.13	0.086	(0.491)	0.078	0.009
27	2.25	0.13	0.086	(0.489)	0.078	0.009
28	2.33	0.13	0.086	(0.487)	0.078	0.009
29	2.42	0.13	0.086	(0.485)	0.078	0.009
30	2.50	0.13	0.086	(0.483)	0.078	0.009
31	2.58	0.17	0.108	(0.481)	0.097	0.011
32	2.67	0.17	0.108	(0.479)	0.097	0.011
33	2.75	0.17	0.108	(0.477)	0.097	0.011
34	2.83	0.17	0.108	(0.475)	0.097	0.011
35	2.92	0.17	0.108	(0.473)	0.097	0.011
36	3.00	0.17	0.108	(0.471)	0.097	0.011
37	3.08	0.17	0.108	(0.469)	0.097	0.011
38	3.17	0.17	0.108	(0.467)	0.097	0.011
39	3.25	0.17	0.108	(0.465)	0.097	0.011
40	3.33	0.17	0.108	(0.463)	0.097	0.011
41	3.42	0.17	0.108	(0.461)	0.097	0.011
42	3.50	0.17	0.108	(0.459)	0.097	0.011
43	3.58	0.17	0.108	(0.457)	0.097	0.011
44	3.67	0.17	0.108	(0.456)	0.097	0.011
45	3.75	0.17	0.108	(0.454)	0.097	0.011
46	3.83	0.20	0.129	(0.452)	0.116	0.013
47	3.92	0.20	0.129	(0.450)	0.116	0.013
48	4.00	0.20	0.129	(0.448)	0.116	0.013
49	4.08	0.20	0.129	(0.446)	0.116	0.013
50	4.17	0.20	0.129	(0.444)	0.116	0.013
51	4.25	0.20	0.129	(0.442)	0.116	0.013

52	4.33	0.23	0.151	(0.440)	0.136	0.015
53	4.42	0.23	0.151	(0.438)	0.136	0.015
54	4.50	0.23	0.151	(0.437)	0.136	0.015
55	4.58	0.23	0.151	(0.435)	0.136	0.015
56	4.67	0.23	0.151	(0.433)	0.136	0.015
57	4.75	0.23	0.151	(0.431)	0.136	0.015
58	4.83	0.27	0.172	(0.429)	0.155	0.017
59	4.92	0.27	0.172	(0.427)	0.155	0.017
60	5.00	0.27	0.172	(0.425)	0.155	0.017
61	5.08	0.20	0.129	(0.424)	0.116	0.013
62	5.17	0.20	0.129	(0.422)	0.116	0.013
63	5.25	0.20	0.129	(0.420)	0.116	0.013
64	5.33	0.23	0.151	(0.418)	0.136	0.015
65	5.42	0.23	0.151	(0.416)	0.136	0.015
66	5.50	0.23	0.151	(0.414)	0.136	0.015
67	5.58	0.27	0.172	(0.413)	0.155	0.017
68	5.67	0.27	0.172	(0.411)	0.155	0.017
69	5.75	0.27	0.172	(0.409)	0.155	0.017
70	5.83	0.27	0.172	(0.407)	0.155	0.017
71	5.92	0.27	0.172	(0.405)	0.155	0.017
72	6.00	0.27	0.172	(0.404)	0.155	0.017
73	6.08	0.30	0.194	(0.402)	0.175	0.019
74	6.17	0.30	0.194	(0.400)	0.175	0.019
75	6.25	0.30	0.194	(0.398)	0.175	0.019
76	6.33	0.30	0.194	(0.396)	0.175	0.019
77	6.42	0.30	0.194	(0.395)	0.175	0.019
78	6.50	0.30	0.194	(0.393)	0.175	0.019
79	6.58	0.33	0.216	(0.391)	0.194	0.022
80	6.67	0.33	0.216	(0.389)	0.194	0.022
81	6.75	0.33	0.216	(0.388)	0.194	0.022
82	6.83	0.33	0.216	(0.386)	0.194	0.022
83	6.92	0.33	0.216	(0.384)	0.194	0.022
84	7.00	0.33	0.216	(0.382)	0.194	0.022
85	7.08	0.33	0.216	(0.381)	0.194	0.022
86	7.17	0.33	0.216	(0.379)	0.194	0.022
87	7.25	0.33	0.216	(0.377)	0.194	0.022
88	7.33	0.37	0.237	(0.375)	0.213	0.024
89	7.42	0.37	0.237	(0.374)	0.213	0.024

90	7.50	0.37	0.237	(0.372)	0.213	0.024
91	7.58	0.40	0.259	(0.370)	0.233	0.026
92	7.67	0.40	0.259	(0.369)	0.233	0.026
93	7.75	0.40	0.259	(0.367)	0.233	0.026
94	7.83	0.43	0.280	(0.365)	0.252	0.028
95	7.92	0.43	0.280	(0.363)	0.252	0.028
96	8.00	0.43	0.280	(0.362)	0.252	0.028
97	8.08	0.50	0.323	(0.360)	0.291	0.032
98	8.17	0.50	0.323	(0.358)	0.291	0.032
99	8.25	0.50	0.323	(0.357)	0.291	0.032
100	8.33	0.50	0.323	(0.355)	0.291	0.032
101	8.42	0.50	0.323	(0.353)	0.291	0.032
102	8.50	0.50	0.323	(0.352)	0.291	0.032
103	8.58	0.53	0.345	(0.350)	0.310	0.034
104	8.67	0.53	0.345	(0.348)	0.310	0.034
105	8.75	0.53	0.345	(0.347)	0.310	0.034
106	8.83	0.57	0.367	(0.345)	0.330	0.037
107	8.92	0.57	0.367	(0.344)	0.330	0.037
108	9.00	0.57	0.367	(0.342)	0.330	0.037
109	9.08	0.63	0.410	0.340	(0.369)	0.069
110	9.17	0.63	0.410	0.339	(0.369)	0.071
111	9.25	0.63	0.410	0.337	(0.369)	0.073
112	9.33	0.67	0.431	0.335	(0.388)	0.096
113	9.42	0.67	0.431	0.334	(0.388)	0.097
114	9.50	0.67	0.431	0.332	(0.388)	0.099
115	9.58	0.70	0.453	0.331	(0.407)	0.122
116	9.67	0.70	0.453	0.329	(0.407)	0.124
117	9.75	0.70	0.453	0.328	(0.407)	0.125
118	9.83	0.73	0.474	0.326	(0.427)	0.148
119	9.92	0.73	0.474	0.324	(0.427)	0.150
120	10.00	0.73	0.474	0.323	(0.427)	0.152
121	10.08	0.50	0.323	(0.321)	0.291	0.032
122	10.17	0.50	0.323	(0.320)	0.291	0.032
123	10.25	0.50	0.323	(0.318)	0.291	0.032
124	10.33	0.50	0.323	(0.317)	0.291	0.032
125	10.42	0.50	0.323	(0.315)	0.291	0.032
126	10.50	0.50	0.323	(0.314)	0.291	0.032
127	10.58	0.67	0.431	0.312	(0.388)	0.119

128	10.67	0.67	0.431	0.310	(	0.388)	0.121
129	10.75	0.67	0.431	0.309	(	0.388)	0.122
130	10.83	0.67	0.431	0.307	(	0.388)	0.124
131	10.92	0.67	0.431	0.306	(	0.388)	0.125
132	11.00	0.67	0.431	0.304	(	0.388)	0.127
133	11.08	0.63	0.410	0.303	(	0.369)	0.107
134	11.17	0.63	0.410	0.301	(	0.369)	0.108
135	11.25	0.63	0.410	0.300	(	0.369)	0.110
136	11.33	0.63	0.410	0.298	(	0.369)	0.111
137	11.42	0.63	0.410	0.297	(	0.369)	0.113
138	11.50	0.63	0.410	0.296	(	0.369)	0.114
139	11.58	0.57	0.367	0.294	(	0.330)	0.072
140	11.67	0.57	0.367	0.293	(	0.330)	0.074
141	11.75	0.57	0.367	0.291	(	0.330)	0.075
142	11.83	0.60	0.388	0.290	(	0.349)	0.098
143	11.92	0.60	0.388	0.288	(	0.349)	0.100
144	12.00	0.60	0.388	0.287	(	0.349)	0.101
145	12.08	0.83	0.539	0.285	(	0.485)	0.254
146	12.17	0.83	0.539	0.284	(	0.485)	0.255
147	12.25	0.83	0.539	0.283	(	0.485)	0.256
148	12.33	0.87	0.561	0.281	(	0.505)	0.279
149	12.42	0.87	0.561	0.280	(	0.505)	0.281
150	12.50	0.87	0.561	0.278	(	0.505)	0.282
151	12.58	0.93	0.604	0.277	(	0.543)	0.327
152	12.67	0.93	0.604	0.275	(	0.543)	0.328
153	12.75	0.93	0.604	0.274	(	0.543)	0.330
154	12.83	0.97	0.625	0.273	(	0.563)	0.353
155	12.92	0.97	0.625	0.271	(	0.563)	0.354
156	13.00	0.97	0.625	0.270	(	0.563)	0.355
157	13.08	1.13	0.733	0.269	(	0.660)	0.464
158	13.17	1.13	0.733	0.267	(	0.660)	0.466
159	13.25	1.13	0.733	0.266	(	0.660)	0.467
160	13.33	1.13	0.733	0.265	(	0.660)	0.469
161	13.42	1.13	0.733	0.263	(	0.660)	0.470
162	13.50	1.13	0.733	0.262	(	0.660)	0.471
163	13.58	0.77	0.496	0.261	(	0.446)	0.235
164	13.67	0.77	0.496	0.259	(	0.446)	0.237
165	13.75	0.77	0.496	0.258	(	0.446)	0.238

166	13.83	0.77	0.496	0.257	(0.446)	0.239
167	13.92	0.77	0.496	0.255	(0.446)	0.241
168	14.00	0.77	0.496	0.254	(0.446)	0.242
169	14.08	0.90	0.582	0.253	(0.524)	0.329
170	14.17	0.90	0.582	0.251	(0.524)	0.331
171	14.25	0.90	0.582	0.250	(0.524)	0.332
172	14.33	0.87	0.561	0.249	(0.505)	0.312
173	14.42	0.87	0.561	0.248	(0.505)	0.313
174	14.50	0.87	0.561	0.246	(0.505)	0.314
175	14.58	0.87	0.561	0.245	(0.505)	0.316
176	14.67	0.87	0.561	0.244	(0.505)	0.317
177	14.75	0.87	0.561	0.242	(0.505)	0.318
178	14.83	0.83	0.539	0.241	(0.485)	0.298
179	14.92	0.83	0.539	0.240	(0.485)	0.299
180	15.00	0.83	0.539	0.239	(0.485)	0.300
181	15.08	0.80	0.517	0.238	(0.466)	0.280
182	15.17	0.80	0.517	0.236	(0.466)	0.281
183	15.25	0.80	0.517	0.235	(0.466)	0.282
184	15.33	0.77	0.496	0.234	(0.446)	0.262
185	15.42	0.77	0.496	0.233	(0.446)	0.263
186	15.50	0.77	0.496	0.232	(0.446)	0.264
187	15.58	0.63	0.410	0.230	(0.369)	0.179
188	15.67	0.63	0.410	0.229	(0.369)	0.180
189	15.75	0.63	0.410	0.228	(0.369)	0.182
190	15.83	0.63	0.410	0.227	(0.369)	0.183
191	15.92	0.63	0.410	0.226	(0.369)	0.184
192	16.00	0.63	0.410	0.224	(0.369)	0.185
193	16.08	0.13	0.086	(0.223)	0.078	0.009
194	16.17	0.13	0.086	(0.222)	0.078	0.009
195	16.25	0.13	0.086	(0.221)	0.078	0.009
196	16.33	0.13	0.086	(0.220)	0.078	0.009
197	16.42	0.13	0.086	(0.219)	0.078	0.009
198	16.50	0.13	0.086	(0.218)	0.078	0.009
199	16.58	0.10	0.065	(0.217)	0.058	0.006
200	16.67	0.10	0.065	(0.215)	0.058	0.006
201	16.75	0.10	0.065	(0.214)	0.058	0.006
202	16.83	0.10	0.065	(0.213)	0.058	0.006
203	16.92	0.10	0.065	(0.212)	0.058	0.006

204	17.00	0.10	0.065	(0.211)	0.058	0.006
205	17.08	0.17	0.108	(0.210)	0.097	0.011
206	17.17	0.17	0.108	(0.209)	0.097	0.011
207	17.25	0.17	0.108	(0.208)	0.097	0.011
208	17.33	0.17	0.108	(0.207)	0.097	0.011
209	17.42	0.17	0.108	(0.206)	0.097	0.011
210	17.50	0.17	0.108	(0.205)	0.097	0.011
211	17.58	0.17	0.108	(0.204)	0.097	0.011
212	17.67	0.17	0.108	(0.203)	0.097	0.011
213	17.75	0.17	0.108	(0.202)	0.097	0.011
214	17.83	0.13	0.086	(0.201)	0.078	0.009
215	17.92	0.13	0.086	(0.200)	0.078	0.009
216	18.00	0.13	0.086	(0.199)	0.078	0.009
217	18.08	0.13	0.086	(0.198)	0.078	0.009
218	18.17	0.13	0.086	(0.197)	0.078	0.009
219	18.25	0.13	0.086	(0.196)	0.078	0.009
220	18.33	0.13	0.086	(0.195)	0.078	0.009
221	18.42	0.13	0.086	(0.194)	0.078	0.009
222	18.50	0.13	0.086	(0.193)	0.078	0.009
223	18.58	0.10	0.065	(0.192)	0.058	0.006
224	18.67	0.10	0.065	(0.191)	0.058	0.006
225	18.75	0.10	0.065	(0.190)	0.058	0.006
226	18.83	0.07	0.043	(0.189)	0.039	0.004
227	18.92	0.07	0.043	(0.188)	0.039	0.004
228	19.00	0.07	0.043	(0.188)	0.039	0.004
229	19.08	0.10	0.065	(0.187)	0.058	0.006
230	19.17	0.10	0.065	(0.186)	0.058	0.006
231	19.25	0.10	0.065	(0.185)	0.058	0.006
232	19.33	0.13	0.086	(0.184)	0.078	0.009
233	19.42	0.13	0.086	(0.183)	0.078	0.009
234	19.50	0.13	0.086	(0.182)	0.078	0.009
235	19.58	0.10	0.065	(0.182)	0.058	0.006
236	19.67	0.10	0.065	(0.181)	0.058	0.006
237	19.75	0.10	0.065	(0.180)	0.058	0.006
238	19.83	0.07	0.043	(0.179)	0.039	0.004
239	19.92	0.07	0.043	(0.178)	0.039	0.004
240	20.00	0.07	0.043	(0.178)	0.039	0.004
241	20.08	0.10	0.065	(0.177)	0.058	0.006

242	20.17	0.10	0.065	(0.176)	0.058	0.006
243	20.25	0.10	0.065	(0.175)	0.058	0.006
244	20.33	0.10	0.065	(0.174)	0.058	0.006
245	20.42	0.10	0.065	(0.174)	0.058	0.006
246	20.50	0.10	0.065	(0.173)	0.058	0.006
247	20.58	0.10	0.065	(0.172)	0.058	0.006
248	20.67	0.10	0.065	(0.171)	0.058	0.006
249	20.75	0.10	0.065	(0.171)	0.058	0.006
250	20.83	0.07	0.043	(0.170)	0.039	0.004
251	20.92	0.07	0.043	(0.169)	0.039	0.004
252	21.00	0.07	0.043	(0.169)	0.039	0.004
253	21.08	0.10	0.065	(0.168)	0.058	0.006
254	21.17	0.10	0.065	(0.167)	0.058	0.006
255	21.25	0.10	0.065	(0.167)	0.058	0.006
256	21.33	0.07	0.043	(0.166)	0.039	0.004
257	21.42	0.07	0.043	(0.165)	0.039	0.004
258	21.50	0.07	0.043	(0.165)	0.039	0.004
259	21.58	0.10	0.065	(0.164)	0.058	0.006
260	21.67	0.10	0.065	(0.164)	0.058	0.006
261	21.75	0.10	0.065	(0.163)	0.058	0.006
262	21.83	0.07	0.043	(0.163)	0.039	0.004
263	21.92	0.07	0.043	(0.162)	0.039	0.004
264	22.00	0.07	0.043	(0.161)	0.039	0.004
265	22.08	0.10	0.065	(0.161)	0.058	0.006
266	22.17	0.10	0.065	(0.160)	0.058	0.006
267	22.25	0.10	0.065	(0.160)	0.058	0.006
268	22.33	0.07	0.043	(0.159)	0.039	0.004
269	22.42	0.07	0.043	(0.159)	0.039	0.004
270	22.50	0.07	0.043	(0.158)	0.039	0.004
271	22.58	0.07	0.043	(0.158)	0.039	0.004
272	22.67	0.07	0.043	(0.157)	0.039	0.004
273	22.75	0.07	0.043	(0.157)	0.039	0.004
274	22.83	0.07	0.043	(0.157)	0.039	0.004
275	22.92	0.07	0.043	(0.156)	0.039	0.004
276	23.00	0.07	0.043	(0.156)	0.039	0.004
277	23.08	0.07	0.043	(0.155)	0.039	0.004
278	23.17	0.07	0.043	(0.155)	0.039	0.004
279	23.25	0.07	0.043	(0.155)	0.039	0.004

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280  23.33     0.07      0.043       (  0.155)       0.039        0.004
281  23.42     0.07      0.043       (  0.154)       0.039        0.004
282  23.50     0.07      0.043       (  0.154)       0.039        0.004
283  23.58     0.07      0.043       (  0.154)       0.039        0.004
284  23.67     0.07      0.043       (  0.153)       0.039        0.004
285  23.75     0.07      0.043       (  0.153)       0.039        0.004
286  23.83     0.07      0.043       (  0.153)       0.039        0.004
287  23.92     0.07      0.043       (  0.153)       0.039        0.004
288  24.00     0.07      0.043       (  0.153)       0.039        0.004
           (Loss Rate Not Used)
    Sum =     100.0                                  Sum =    20.2
     Flood volume = Effective rainfall      1.68(In)
      times area       0.4(Ac.)/[(In)/(Ft.)] =       0.1(Ac.Ft)
     Total soil loss =      3.71(In)
     Total soil loss =     0.133(Ac.Ft)
     Total rainfall =      5.39(In)
     Flood volume =        2626.8 Cubic Feet
     Total soil loss =        5786.5 Cubic Feet
     ---------------------------------------------------------------------
      Peak flow rate of this hydrograph =      0.204(CFS)
     ---------------------------------------------------------------------
     +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                         24 - H O U R    S T O R M
                    R u n o f f      H y d r o g r a p h
     ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

     ---------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
 ---------------------------------------------------------------------
   0+ 5       0.0000      0.00  Q         |         |         |         |
   0+10       0.0000      0.00  Q         |         |         |         |
   0+15       0.0000      0.00  Q         |         |         |         |
   0+20       0.0001      0.00  Q         |         |         |         |
   0+25       0.0001      0.00  Q         |         |         |         |
   0+30       0.0001      0.00  Q         |         |         |         |
   0+35       0.0001      0.00  Q         |         |         |         |
   0+40       0.0001      0.00  Q         |         |         |         |
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0+45	0.0002	0.00	Q	|	|	|	|
0+50	0.0002	0.00	Q	|	|	|	|
0+55	0.0002	0.00	Q	|	|	|	|
1+ 0	0.0002	0.00	Q	|	|	|	|
1+ 5	0.0003	0.00	Q	|	|	|	|
1+10	0.0003	0.00	Q	|	|	|	|
1+15	0.0003	0.00	Q	|	|	|	|
1+20	0.0003	0.00	Q	|	|	|	|
1+25	0.0003	0.00	Q	|	|	|	|
1+30	0.0003	0.00	Q	|	|	|	|
1+35	0.0004	0.00	Q	|	|	|	|
1+40	0.0004	0.00	Q	|	|	|	|
1+45	0.0004	0.00	Q	|	|	|	|
1+50	0.0004	0.00	Q	|	|	|	|
1+55	0.0005	0.00	Q	|	|	|	|
2+ 0	0.0005	0.00	Q	|	|	|	|
2+ 5	0.0005	0.00	Q	|	|	|	|
2+10	0.0005	0.00	Q	|	|	|	|
2+15	0.0006	0.00	Q	|	|	|	|
2+20	0.0006	0.00	Q	|	|	|	|
2+25	0.0006	0.00	Q	|	|	|	|
2+30	0.0006	0.00	Q	|	|	|	|
2+35	0.0007	0.00	Q	|	|	|	|
2+40	0.0007	0.00	Q	|	|	|	|
2+45	0.0007	0.00	Q	|	|	|	|
2+50	0.0008	0.00	Q	|	|	|	|
2+55	0.0008	0.00	Q	|	|	|	|
3+ 0	0.0008	0.00	Q	|	|	|	|
3+ 5	0.0009	0.00	Q	|	|	|	|
3+10	0.0009	0.00	Q	|	|	|	|
3+15	0.0009	0.00	Q	|	|	|	|
3+20	0.0010	0.00	Q	|	|	|	|
3+25	0.0010	0.00	Q	|	|	|	|
3+30	0.0010	0.00	Q	|	|	|	|
3+35	0.0011	0.00	Q	|	|	|	|
3+40	0.0011	0.00	Q	|	|	|	|
3+45	0.0011	0.00	Q	|	|	|	|
3+50	0.0012	0.01	Q	|	|	|	|

3+55	0.0012	0.01	Q				
4+ 0	0.0012	0.01	Q				
4+ 5	0.0013	0.01	Q				
4+10	0.0013	0.01	Q				
4+15	0.0014	0.01	Q				
4+20	0.0014	0.01	Q				
4+25	0.0014	0.01	Q				
4+30	0.0015	0.01	Q				
4+35	0.0015	0.01	QV				
4+40	0.0016	0.01	QV				
4+45	0.0016	0.01	QV				
4+50	0.0017	0.01	QV				
4+55	0.0017	0.01	QV				
5+ 0	0.0018	0.01	QV				
5+ 5	0.0018	0.01	QV				
5+10	0.0019	0.01	QV				
5+15	0.0019	0.01	QV				
5+20	0.0019	0.01	QV				
5+25	0.0020	0.01	QV				
5+30	0.0020	0.01	QV				
5+35	0.0021	0.01	QV				
5+40	0.0021	0.01	QV				
5+45	0.0022	0.01	QV				
5+50	0.0022	0.01	QV				
5+55	0.0023	0.01	QV				
6+ 0	0.0023	0.01	QV				
6+ 5	0.0024	0.01	QV				
6+10	0.0025	0.01	QV				
6+15	0.0025	0.01	QV				
6+20	0.0026	0.01	QV				
6+25	0.0026	0.01	QV				
6+30	0.0027	0.01	QV				
6+35	0.0027	0.01	QV				
6+40	0.0028	0.01	QV				
6+45	0.0029	0.01	QV				
6+50	0.0029	0.01	QV				
6+55	0.0030	0.01	QV				
7+ 0	0.0031	0.01	Q V				

7+ 5	0.0031	0.01	Q V	|	|	|	|
7+10	0.0032	0.01	Q V	|	|	|	|
7+15	0.0033	0.01	Q V	|	|	|	|
7+20	0.0033	0.01	Q V	|	|	|	|
7+25	0.0034	0.01	Q V	|	|	|	|
7+30	0.0035	0.01	Q V	|	|	|	|
7+35	0.0036	0.01	Q V	|	|	|	|
7+40	0.0036	0.01	Q V	|	|	|	|
7+45	0.0037	0.01	Q V	|	|	|	|
7+50	0.0038	0.01	Q V	|	|	|	|
7+55	0.0039	0.01	Q V	|	|	|	|
8+ 0	0.0040	0.01	Q V	|	|	|	|
8+ 5	0.0041	0.01	Q V	|	|	|	|
8+10	0.0042	0.01	Q V	|	|	|	|
8+15	0.0042	0.01	Q V	|	|	|	|
8+20	0.0043	0.01	Q V	|	|	|	|
8+25	0.0044	0.01	Q V	|	|	|	|
8+30	0.0045	0.01	Q V	|	|	|	|
8+35	0.0046	0.01	Q V	|	|	|	|
8+40	0.0047	0.01	Q V	|	|	|	|
8+45	0.0048	0.01	Q V	|	|	|	|
8+50	0.0050	0.02	Q V	|	|	|	|
8+55	0.0051	0.02	Q V	|	|	|	|
9+ 0	0.0052	0.02	Q V	|	|	|	|
9+ 5	0.0054	0.03	Q V	|	|	|	|
9+10	0.0056	0.03	Q V	|	|	|	|
9+15	0.0058	0.03	Q V	|	|	|	|
9+20	0.0061	0.04	Q V	|	|	|	|
9+25	0.0064	0.04	Q V	|	|	|	|
9+30	0.0067	0.04	Q V	|	|	|	|
9+35	0.0070	0.05	Q V	|	|	|	|
9+40	0.0074	0.05	Q V	|	|	|	|
9+45	0.0078	0.05	Q V	|	|	|	|
9+50	0.0082	0.06	Q V	|	|	|	|
9+55	0.0087	0.07	Q V	|	|	|	|
10+ 0	0.0091	0.07	Q V	|	|	|	|
10+ 5	0.0092	0.01	Q V	|	|	|	|
10+10	0.0093	0.01	Q V	|	|	|	|

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10+15       0.0094      0.01  Q     V   |          |          |          |
10+20       0.0095      0.01  Q     V   |          |          |          |
10+25       0.0096      0.01  Q     V   |          |          |          |
10+30       0.0097      0.01  Q     V   |          |          |          |
10+35       0.0101      0.05  Q     V   |          |          |          |
10+40       0.0104      0.05  Q     V   |          |          |          |
10+45       0.0108      0.05  Q      V  |          |          |          |
10+50       0.0112      0.05  Q      V  |          |          |          |
10+55       0.0115      0.05  Q      V  |          |          |          |
11+ 0       0.0119      0.05  Q      V  |          |          |          |
11+ 5       0.0122      0.05  Q       V |          |          |          |
11+10       0.0126      0.05  Q       V |          |          |          |
11+15       0.0129      0.05  Q       V |          |          |          |
11+20       0.0132      0.05  Q       V |          |          |          |
11+25       0.0136      0.05  Q       V |          |          |          |
11+30       0.0139      0.05  Q        V|          |          |          |
11+35       0.0141      0.03  Q        V|          |          |          |
11+40       0.0143      0.03  Q        V|          |          |          |
11+45       0.0146      0.03  Q        V|          |          |          |
11+50       0.0149      0.04  Q        V|          |          |          |
11+55       0.0152      0.04  Q         V          |          |          |
12+ 0       0.0155      0.04  Q         V          |          |          |
12+ 5       0.0162      0.11  Q         V          |          |          |
12+10       0.0170      0.11  Q         |V         |          |          |
12+15       0.0177      0.11  Q         |V         |          |          |
12+20       0.0186      0.12  Q         | V        |          |          |
12+25       0.0194      0.12  Q         | V        |          |          |
12+30       0.0203      0.12  Q         |  V       |          |          |
12+35       0.0212      0.14  Q         |   V      |          |          |
12+40       0.0222      0.14  Q         |   V      |          |          |
12+45       0.0232      0.14  Q         |    V     |          |          |
12+50       0.0242      0.15  Q         |     V    |          |          |
12+55       0.0253      0.15  Q         |     V    |          |          |
13+ 0       0.0264      0.15  Q         |      V   |          |          |
13+ 5       0.0278      0.20  Q         |       V  |          |          |
13+10       0.0291      0.20  Q         |        V |          |          |
13+15       0.0305      0.20  Q         |         V|          |          |
13+20       0.0319      0.20  Q         |          |V         |          |
```

```
13+25       0.0333      0.20  Q          |          | V        |          |
13+30       0.0347      0.20  Q          |          |  V       |          |
13+35       0.0354      0.10  Q          |          |  V       |          |
13+40       0.0362      0.10  Q          |          |  V       |          |
13+45       0.0369      0.10  Q          |          |   V      |          |
13+50       0.0376      0.10  Q          |          |   V      |          |
13+55       0.0383      0.10  Q          |          |    V     |          |
14+ 0       0.0390      0.10  Q          |          |    V     |          |
14+ 5       0.0400      0.14  Q          |          |     V    |          |
14+10       0.0410      0.14  Q          |          |      V   |          |
14+15       0.0420      0.14  Q          |          |      V   |          |
14+20       0.0429      0.14  Q          |          |       V  |          |
14+25       0.0439      0.14  Q          |          |        V |          |
14+30       0.0448      0.14  Q          |          |        V |          |
14+35       0.0457      0.14  Q          |          |         V          |
14+40       0.0467      0.14  Q          |          |         V          |
14+45       0.0476      0.14  Q          |          |          V         |
14+50       0.0485      0.13  Q          |          |          | V       |
14+55       0.0494      0.13  Q          |          |          | V       |
15+ 0       0.0503      0.13  Q          |          |          |  V      |
15+ 5       0.0511      0.12  Q          |          |          |  V      |
15+10       0.0520      0.12  Q          |          |          |   V     |
15+15       0.0528      0.12  Q          |          |          |    V    |
15+20       0.0536      0.11  Q          |          |          |    V    |
15+25       0.0544      0.11  Q          |          |          |     V   |
15+30       0.0552      0.11  Q          |          |          |     V   |
15+35       0.0557      0.08  Q          |          |          |     V   |
15+40       0.0563      0.08  Q          |          |          |      V  |
15+45       0.0568      0.08  Q          |          |          |      V  |
15+50       0.0573      0.08  Q          |          |          |       V |
15+55       0.0579      0.08  Q          |          |          |       V |
16+ 0       0.0584      0.08  Q          |          |          |       V |
16+ 5       0.0585      0.00  Q          |          |          |       V |
16+10       0.0585      0.00  Q          |          |          |       V |
16+15       0.0585      0.00  Q          |          |          |       V |
16+20       0.0586      0.00  Q          |          |          |       V |
16+25       0.0586      0.00  Q          |          |          |       V |
16+30       0.0586      0.00  Q          |          |          |       V |
```

16+35	0.0586	0.00	Q	|	|	|	V |
16+40	0.0586	0.00	Q	|	|	|	V |
16+45	0.0587	0.00	Q	|	|	|	V |
16+50	0.0587	0.00	Q	|	|	|	V |
16+55	0.0587	0.00	Q	|	|	|	V |
17+ 0	0.0587	0.00	Q	|	|	|	V |
17+ 5	0.0588	0.00	Q	|	|	|	V |
17+10	0.0588	0.00	Q	|	|	|	V |
17+15	0.0588	0.00	Q	|	|	|	V|
17+20	0.0588	0.00	Q	|	|	|	V|
17+25	0.0589	0.00	Q	|	|	|	V|
17+30	0.0589	0.00	Q	|	|	|	V|
17+35	0.0589	0.00	Q	|	|	|	V|
17+40	0.0590	0.00	Q	|	|	|	V|
17+45	0.0590	0.00	Q	|	|	|	V|
17+50	0.0590	0.00	Q	|	|	|	V|
17+55	0.0591	0.00	Q	|	|	|	V|
18+ 0	0.0591	0.00	Q	|	|	|	V|
18+ 5	0.0591	0.00	Q	|	|	|	V|
18+10	0.0591	0.00	Q	|	|	|	V|
18+15	0.0592	0.00	Q	|	|	|	V|
18+20	0.0592	0.00	Q	|	|	|	V|
18+25	0.0592	0.00	Q	|	|	|	V|
18+30	0.0592	0.00	Q	|	|	|	V|
18+35	0.0593	0.00	Q	|	|	|	V|
18+40	0.0593	0.00	Q	|	|	|	V|
18+45	0.0593	0.00	Q	|	|	|	V|
18+50	0.0593	0.00	Q	|	|	|	V|
18+55	0.0593	0.00	Q	|	|	|	V|
19+ 0	0.0593	0.00	Q	|	|	|	V|
19+ 5	0.0594	0.00	Q	|	|	|	V|
19+10	0.0594	0.00	Q	|	|	|	V|
19+15	0.0594	0.00	Q	|	|	|	V|
19+20	0.0594	0.00	Q	|	|	|	V|
19+25	0.0594	0.00	Q	|	|	|	V|
19+30	0.0595	0.00	Q	|	|	|	V|
19+35	0.0595	0.00	Q	|	|	|	V|
19+40	0.0595	0.00	Q	|	|	|	V|

19+45	0.0595	0.00	Q	|	|	|	V|
19+50	0.0595	0.00	Q	|	|	|	V|
19+55	0.0596	0.00	Q	|	|	|	V|
20+ 0	0.0596	0.00	Q	|	|	|	V|
20+ 5	0.0596	0.00	Q	|	|	|	V|
20+10	0.0596	0.00	Q	|	|	|	V|
20+15	0.0596	0.00	Q	|	|	|	V|
20+20	0.0596	0.00	Q	|	|	|	V|
20+25	0.0597	0.00	Q	|	|	|	V|
20+30	0.0597	0.00	Q	|	|	|	V|
20+35	0.0597	0.00	Q	|	|	|	V|
20+40	0.0597	0.00	Q	|	|	|	V|
20+45	0.0597	0.00	Q	|	|	|	V|
20+50	0.0598	0.00	Q	|	|	|	V|
20+55	0.0598	0.00	Q	|	|	|	V|
21+ 0	0.0598	0.00	Q	|	|	|	V|
21+ 5	0.0598	0.00	Q	|	|	|	V|
21+10	0.0598	0.00	Q	|	|	|	V|
21+15	0.0598	0.00	Q	|	|	|	V|
21+20	0.0599	0.00	Q	|	|	|	V|
21+25	0.0599	0.00	Q	|	|	|	V|
21+30	0.0599	0.00	Q	|	|	|	V|
21+35	0.0599	0.00	Q	|	|	|	V|
21+40	0.0599	0.00	Q	|	|	|	V|
21+45	0.0599	0.00	Q	|	|	|	V|
21+50	0.0599	0.00	Q	|	|	|	V|
21+55	0.0600	0.00	Q	|	|	|	V|
22+ 0	0.0600	0.00	Q	|	|	|	V|
22+ 5	0.0600	0.00	Q	|	|	|	V|
22+10	0.0600	0.00	Q	|	|	|	V|
22+15	0.0600	0.00	Q	|	|	|	V|
22+20	0.0600	0.00	Q	|	|	|	V|
22+25	0.0601	0.00	Q	|	|	|	V|
22+30	0.0601	0.00	Q	|	|	|	V|
22+35	0.0601	0.00	Q	|	|	|	V|
22+40	0.0601	0.00	Q	|	|	|	V|
22+45	0.0601	0.00	Q	|	|	|	V|
22+50	0.0601	0.00	Q	|	|	|	V|

```
   22+55       0.0601      0.00  Q          |          |          |         V|
   23+ 0       0.0601      0.00  Q          |          |          |         V|
   23+ 5       0.0602      0.00  Q          |          |          |         V|
   23+10       0.0602      0.00  Q          |          |          |         V|
   23+15       0.0602      0.00  Q          |          |          |         V|
   23+20       0.0602      0.00  Q          |          |          |         V|
   23+25       0.0602      0.00  Q          |          |          |         V|
   23+30       0.0602      0.00  Q          |          |          |         V|
   23+35       0.0602      0.00  Q          |          |          |         V|
   23+40       0.0603      0.00  Q          |          |          |         V|
   23+45       0.0603      0.00  Q          |          |          |         V|
   23+50       0.0603      0.00  Q          |          |          |         V|
   23+55       0.0603      0.00  Q          |          |          |         V|
   24+ 0       0.0603      0.00  Q          |          |          |          V
-------------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 3- 100 YR, 1-hr

Drainage Area = 1.24(Ac.) = 0.002 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.24(Ac.) = 0.002 Sq. Mi.
Length along longest watercourse = 95.00(Ft.)
Length along longest watercourse measured to centroid = 48.00(Ft.)
Length along longest watercourse = 0.018 Mi.
Length along longest watercourse measured to centroid = 0.009 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 55.5789 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.006 Hr.
Lag time =     0.37 Min.
25% of lag time =     0.09 Min.
40% of lag time =     0.15 Min.
Unit time =     5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.24              0.51                  0.64

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.24              1.61                  2.00

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.514(In)
Area Averaged 100-Year Rainfall =    1.610(In)

Point rain (area averaged) =    1.610(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    1.610(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     1.240           69.00          0.200
 Total Area Entered =      1.24(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306       1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

Slope of intensity-duration curve for a 1 hour storm =0.5500

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	100.000	1.250
		Sum = 100.000	Sum= 1.250

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	3.30	0.638	0.306	(0.574)	0.332
2	0.17	4.20	0.811	0.306	(0.730)	0.506
3	0.25	4.40	0.850	0.306	(0.765)	0.544
4	0.33	4.80	0.927	0.306	(0.835)	0.622
5	0.42	5.20	1.005	0.306		

U n i t H y d r o g r a p h A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 3- 100 YR, 3-hr

Drainage Area = 1.24(Ac.) = 0.002 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.24(Ac.) = 0.002 Sq. Mi.
Length along longest watercourse = 95.00(Ft.)
Length along longest watercourse measured to centroid = 48.00(Ft.)
Length along longest watercourse = 0.018 Mi.
Length along longest watercourse measured to centroid = 0.009 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 55.5789 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.006 Hr.
Lag time =     0.37 Min.
25% of lag time =     0.09 Min.
40% of lag time =     0.15 Min.
Unit time =     5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.24             0.86                  1.07

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.24             2.25                  2.79

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.864(In)
Area Averaged 100-Year Rainfall =    2.250(In)

Point rain (area averaged) =    2.250(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.250(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     1.240           69.00          0.200
 Total Area Entered =      1.24(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306       1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	1364.094	100.000	1.250
		Sum = 100.000	Sum= 1.250

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.351	0.306	(0.316)	0.045
2	0.17	1.30	0.351	0.306	(0.316)	0.045
3	0.25	1.10	0.297	(0.306)	0.267	0.030
4	0.33	1.50	0.405	0.306	(0.364)	0.099
5	0.42	1.50	0.405	0.306	(0.364)	0.099
6	0.50	1.80	0.486	0.306	(0.437)	0.180
7	0.58	1.50	0.405	0.306	(0.364)	0.099
8	0.67	1.80	0.486	0.306	(0.437)	0.180
9	0.75	1.80	0.486	0.306	(0.437)	0.180
10	0.83	1.50	0.405	0.306	(0.364)	0.099
11	0.92	1.60	0.432	0.306	(0.389)	0.126
12	1.00	1.80	0.486	0.306	(0.437)	0.180
13	1.08	2.20	0.594	0.306	(0.535)	0.288

```
14   1.17     2.20      0.594          0.306    (  0.535)         0.288
15   1.25     2.20      0.594          0.306    (  0.535)         0.288
16   1.33     2.00      0.540          0.306    (  0.486)         0.234
17   1.42     2.60      0.702          0.306    (  0.632)         0.396
18   1.50     2.70      0.729          0.306    (  0.656)         0.423
19   1.58     2.40      0.648          0.306    (  0.583)         0.342
20   1.67     2.70      0.729          0.306    (  0.656)         0.423
21   1.75     3.30      0.891          0.306    (  0.802)         0.585
22   1.83     3.10      0.837          0.306    (  0.753)         0.531
23   1.92     2.90      0.783          0.306    (  0.705)         0.477
24   2.00     3.00      0.810          0.306    (  0.729)         0.504
25   2.08     3.10      0.837          0.306    (  0.753)         0.531
26   2.17     4.20      1.134          0.306    (  1.021)         0.828
27   2.25     5.00      1.350          0.306    (  1.215)         1.044
28   2.33     3.50      0.945          0.306    (  0.850)         0.639
29   2.42     6.80      1.836          0.306    (  1.652)         1.530
30   2.50     7.30      1.971          0.306    (  1.774)         1.665
31   2.58     8.20      2.214          0.306    (  1.993)         1.908
32   2.67     5.90      1.593          0.306    (  1.434)         1.287
33   2.75     2.00      0.540          0.306    (  0.486)         0.234
34   2.83     1.80      0.486          0.306    (  0.437)         0.180
35   2.92     1.80      0.486          0.306    (  0.437)         0.180
36   3.00     0.60      0.162       (  0.306)       0.146         0.016
          (Loss Rate Not Used)
   Sum =     100.0                                    Sum =    16.2
    Flood volume = Effective rainfall      1.35(In)
     times area       1.2(Ac.)/[(In)/(Ft.)] =       0.1(Ac.Ft)
    Total soil loss =      0.90(In)
    Total soil loss =     0.093(Ac.Ft)
    Total rainfall =      2.25(In)
    Flood volume =        6074.0 Cubic Feet
    Total soil loss =        4053.6 Cubic Feet
    ---------------------------------------------------------------------
     Peak flow rate of this hydrograph =      2.386(CFS)
    ---------------------------------------------------------------------
    +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        3 - H O U R    S T O R M
                    R u n o f f      H y d r o g r a p h
```

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0004	0.06	Q				
0+10	0.0008	0.06	Q				
0+15	0.0010	0.04	Q				
0+20	0.0019	0.12	Q				
0+25	0.0027	0.12	Q				
0+30	0.0043	0.23	QV				
0+35	0.0052	0.12	QV				
0+40	0.0067	0.23	QV				
0+45	0.0083	0.23	Q V				
0+50	0.0091	0.12	Q V				
0+55	0.0102	0.16	Q V				

1

U n i t H y d r o g r a p h A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 3- 100 YR, 6-hr

Drainage Area = 1.24(Ac.) = 0.002 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.24(Ac.) = 0.002 Sq. Mi.
Length along longest watercourse = 95.00(Ft.)
Length along longest watercourse measured to centroid = 48.00(Ft.)
Length along longest watercourse = 0.018 Mi.
Length along longest watercourse measured to centroid = 0.009 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 55.5789 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.006 Hr.
Lag time =     0.37 Min.
25% of lag time =     0.09 Min.
40% of lag time =     0.15 Min.
Unit time =     5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.24             1.20                 1.49

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.24             2.99                 3.71

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.200(In)
Area Averaged 100-Year Rainfall =    2.990(In)

Point rain (area averaged) =    2.990(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.990(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     1.240           69.00          0.200
 Total Area Entered =      1.24(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306       1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	100.000	1.250
		Sum = 100.000	Sum= 1.250

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.179	(0.306)	0.161	0.018
2	0.17	0.60	0.215	(0.306)	0.194	0.022
3	0.25	0.60	0.215	(0.306)	0.194	0.022
4	0.33	0.60	0.215	(0.306)	0.194	0.022
5	0.42	0.60	0.215	(0.306)	0.194	0.022
6	0.50	0.70	0.251	(0.306)	0.226	0.025
7	0.58	0.70	0.251	(0.306)	0.226	0.025
8	0.67	0.70	0.251	(0.306)	0.226	0.025
9	0.75	0.70	0.251	(0.306)	0.226	0.025
10	0.83	0.70	0.251	(0.306)	0.226	0.025
11	0.92	0.70	0.251	(0.306)	0.226	0.025
12	1.00	0.80	0.287	(0.306)	0.258	0.029
13	1.08	0.80	0.287	(0.306)	0.258	0.029

14	1.17	0.80	0.287	(0.306)	0.258	0.029
15	1.25	0.80	0.287	(0.306)	0.258	0.029
16	1.33	0.80	0.287	(0.306)	0.258	0.029
17	1.42	0.80	0.287	(0.306)	0.258	0.029
18	1.50	0.80	0.287	(0.306)	0.258	0.029
19	1.58	0.80	0.287	(0.306)	0.258	0.029
20	1.67	0.80	0.287	(0.306)	0.258	0.029
21	1.75	0.80	0.287	(0.306)	0.258	0.029
22	1.83	0.80	0.287	(0.306)	0.258	0.029
23	1.92	0.80	0.287	(0.306)	0.258	0.029
24	2.00	0.90	0.323	(0.306)	0.291	0.032
25	2.08	0.80	0.287	(0.306)	0.258	0.029
26	2.17	0.90	0.323	(0.306)	0.291	0.032
27	2.25	0.90	0.323	(0.306)	0.291	0.032
28	2.33	0.90	0.323	(0.306)	0.291	0.032
29	2.42	0.90	0.323	(0.306)	0.291	0.032
30	2.50	0.90	0.323	(0.306)	0.291	0.032
31	2.58	0.90	0.323	(0.306)	0.291	0.032
32	2.67	0.90	0.323	(0.306)	0.291	0.032
33	2.75	1.00	0.359	0.306	(0.323)	0.053
34	2.83	1.00	0.359	0.306	(0.323)	0.053
35	2.92	1.00	0.359	0.306	(0.323)	0.053
36	3.00	1.00	0.359	0.306	(0.323)	0.053
37	3.08	1.00	0.359	0.306	(0.323)	0.053
38	3.17	1.10	0.395	0.306	(0.355)	0.089
39	3.25	1.10	0.395	0.306	(0.355)	0.089
40	3.33	1.10	0.395	0.306	(0.355)	0.089
41	3.42	1.20	0.431	0.306	(0.388)	0.125
42	3.50	1.30	0.466	0.306	(0.420)	0.161
43	3.58	1.40	0.502	0.306	(0.452)	0.197
44	3.67	1.40	0.502	0.306	(0.452)	0.197
45	3.75	1.50	0.538	0.306	(0.484)	0.233
46	3.83	1.50	0.538	0.306	(0.484)	0.233
47	3.92	1.60	0.574	0.306	(0.517)	0.268
48	4.00	1.60	0.574	0.306	(0.517)	0.268
49	4.08	1.70	0.610	0.306	(0.549)	0.304
50	4.17	1.80	0.646	0.306	(0.581)	0.340
51	4.25	1.90	0.682	0.306	(0.614)	0.376

```
52   4.33     2.00      0.718          0.306    (  0.646)        0.412
53   4.42     2.10      0.753          0.306    (  0.678)        0.448
54   4.50     2.10      0.753          0.306    (  0.678)        0.448
55   4.58     2.20      0.789          0.306    (  0.710)        0.484
56   4.67     2.30      0.825          0.306    (  0.743)        0.520
57   4.75     2.40      0.861          0.306    (  0.775)        0.555
58   4.83     2.40      0.861          0.306    (  0.775)        0.555
59   4.92     2.50      0.897          0.306    (  0.807)        0.591
60   5.00     2.60      0.933          0.306    (  0.840)        0.627
61   5.08     3.10      1.112          0.306    (  1.001)        0.807
62   5.17     3.60      1.292          0.306    (  1.163)        0.986
63   5.25     3.90      1.399          0.306    (  1.259)        1.094
64   5.33     4.20      1.507          0.306    (  1.356)        1.201
65   5.42     4.70      1.686          0.306    (  1.518)        1.381
66   5.50     5.60      2.009          0.306    (  1.808)        1.704
67   5.58     1.90      0.682          0.306    (  0.614)        0.376
68   5.67     0.90      0.323       (  0.306)       0.291        0.032
69   5.75     0.60      0.215       (  0.306)       0.194        0.022
70   5.83     0.50      0.179       (  0.306)       0.161        0.018
71   5.92     0.30      0.108       (  0.306)       0.097        0.011
72   6.00     0.20      0.072       (  0.306)       0.065        0.007
          (Loss Rate Not Used)
   Sum =     100.0                                   Sum =    16.4
    Flood volume = Effective rainfall      1.37(In)
     times area       1.2(Ac.)/[(In)/(Ft.)] =       0.1(Ac.Ft)
    Total soil loss =      1.62(In)
    Total soil loss =     0.168(Ac.Ft)
    Total rainfall =      2.99(In)
    Flood volume =        6150.6 Cubic Feet
    Total soil loss =        7308.0 Cubic Feet
    ---------------------------------------------------------------------
     Peak flow rate of this hydrograph =      2.130(CFS)
    ---------------------------------------------------------------------
    +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        6 - H O U R    S T O R M
                    R u n o f f      H y d r o g r a p h
    ---------------------------------------------------------------------
                Hydrograph in   5   Minute intervals ((CFS))
```

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0002	0.02	Q				
0+10	0.0003	0.03	Q				
0+15	0.0005	0.03	Q				
0+20	0.0007	0.03	Q				
0+25	0.0009	0.03	Q				
0+30	0.0011	0.03	Q				
0+35	0.0013	0.03	Q				
0+40	0.0015	0.03	Q				
0+45	0.0018	0.03	Q				
0+50	0.0020	0.03	Q				
0+55	0.0022	0.03	Q				
1+ 0	0.0024	0.04	Q				
1+ 5	0.0027	0.04	Q				
1+10	0.0029	0.04	Q				
1+15	0.0032	0.04	Q				
1+20	0.0034	0.04	Q				
1+25	0.0037	0.04	QV				
1+30	0.0039	0.04	QV				
1+35	0.0042	0.04	QV				
1+40	0.0044	0.04	QV				
1+45	0.0047	0.04	QV				
1+50	0.0049	0.04	QV				
1+55	0.0052	0.04	QV				
2+ 0	0.0054	0.04	QV				
2+ 5	0.0057	0.04	QV				
2+10	0.0060	0.04	QV				
2+15	0.0062	0.04	QV				
2+20	0.0065	0.04	QV				
2+25	0.0068	0.04	QV				
2+30	0.0071	0.04	Q V				
2+35	0.0074	0.					

U n i t H y d r o g r a p h A n a l y s i s

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Study date 01/03/23 File: VOLT324100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 3- 100 YR, 24-hr

Drainage Area = 1.24(Ac.) = 0.002 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.24(Ac.) = 0.002 Sq. Mi.
Length along longest watercourse = 95.00(Ft.)
Length along longest watercourse measured to centroid = 48.00(Ft.)
Length along longest watercourse = 0.018 Mi.
Length along longest watercourse measured to centroid = 0.009 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 55.5789 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.006 Hr.
Lag time =     0.37 Min.
25% of lag time =     0.09 Min.
40% of lag time =     0.15 Min.
Unit time =     5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.24             2.06                 2.55

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.24             5.39                 6.68

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    2.060(In)
Area Averaged 100-Year Rainfall =    5.390(In)

Point rain (area averaged) =    5.390(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    5.390(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     1.240           69.00          0.200
 Total Area Entered =      1.24(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306       1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	100.000	1.250
	Sum =	100.000 Sum=	1.250

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.043	(0.542)	0.039	0.004
2	0.17	0.07	0.043	(0.540)	0.039	0.004
3	0.25	0.07	0.043	(0.538)	0.039	0.004
4	0.33	0.10	0.065	(0.536)	0.058	0.006
5	0.42	0.10	0.065	(0.534)	0.058	0.006
6	0.50	0.10	0.065	(0.531)	0.058	0.006
7	0.58	0.10	0.065	(0.529)	0.058	0.006
8	0.67	0.10	0.065	(0.527)	0.058	0.006
9	0.75	0.10	0.065	(0.525)	0.058	0.006
10	0.83	0.13	0.086	(0.523)	0.078	0.009
11	0.92	0.13	0.086	(0.521)	0.078	0.009
12	1.00	0.13	0.086	(0.519)	0.078	0.009
13	1.08	0.10	0.065	(0.517)	0.058	0.006

14	1.17	0.10	0.065	(0.515)	0.058	0.006
15	1.25	0.10	0.065	(0.513)	0.058	0.006
16	1.33	0.10	0.065	(0.511)	0.058	0.006
17	1.42	0.10	0.065	(0.509)	0.058	0.006
18	1.50	0.10	0.065	(0.507)	0.058	0.006
19	1.58	0.10	0.065	(0.505)	0.058	0.006
20	1.67	0.10	0.065	(0.503)	0.058	0.006
21	1.75	0.10	0.065	(0.501)	0.058	0.006
22	1.83	0.13	0.086	(0.499)	0.078	0.009
23	1.92	0.13	0.086	(0.497)	0.078	0.009
24	2.00	0.13	0.086	(0.495)	0.078	0.009
25	2.08	0.13	0.086	(0.493)	0.078	0.009
26	2.17	0.13	0.086	(0.491)	0.078	0.009
27	2.25	0.13	0.086	(0.489)	0.078	0.009
28	2.33	0.13	0.086	(0.487)	0.078	0.009
29	2.42	0.13	0.086	(0.485)	0.078	0.009
30	2.50	0.13	0.086	(0.483)	0.078	0.009
31	2.58	0.17	0.108	(0.481)	0.097	0.011
32	2.67	0.17	0.108	(0.479)	0.097	0.011
33	2.75	0.17	0.108	(0.477)	0.097	0.011
34	2.83	0.17	0.108	(0.475)	0.097	0.011
35	2.92	0.17	0.108	(0.473)	0.097	0.011
36	3.00	0.17	0.108	(0.471)	0.097	0.011
37	3.08	0.17	0.108	(0.469)	0.097	0.011
38	3.17	0.17	0.108	(0.467)	0.097	0.011
39	3.25	0.17	0.108	(0.465)	0.097	0.011
40	3.33	0.17	0.108	(0.463)	0.097	0.011
41	3.42	0.17	0.108	(0.461)	0.097	0.011
42	3.50	0.17	0.108	(0.459)	0.097	0.011
43	3.58	0.17	0.108	(0.457)	0.097	0.011
44	3.67	0.17	0.108	(0.456)	0.097	0.011
45	3.75	0.17	0.108	(0.454)	0.097	0.011
46	3.83	0.20	0.129	(0.452)	0.116	0.013
47	3.92	0.20	0.129	(0.450)	0.116	0.013
48	4.00	0.20	0.129	(0.448)	0.116	0.013
49	4.08	0.20	0.129	(0.446)	0.116	0.013
50	4.17	0.20	0.129	(0.444)	0.116	0.013
51	4.25	0.20	0.129	(0.442)	0.116	0.013

52	4.33	0.23	0.151	(0.440)	0.136	0.015
53	4.42	0.23	0.151	(0.438)	0.136	0.015
54	4.50	0.23	0.151	(0.437)	0.136	0.015
55	4.58	0.23	0.151	(0.435)	0.136	0.015
56	4.67	0.23	0.151	(0.433)	0.136	0.015
57	4.75	0.23	0.151	(0.431)	0.136	0.015
58	4.83	0.27	0.172	(0.429)	0.155	0.017
59	4.92	0.27	0.172	(0.427)	0.155	0.017
60	5.00	0.27	0.172	(0.425)	0.155	0.017
61	5.08	0.20	0.129	(0.424)	0.116	0.013
62	5.17	0.20	0.129	(0.422)	0.116	0.013
63	5.25	0.20	0.129	(0.420)	0.116	0.013
64	5.33	0.23	0.151	(0.418)	0.136	0.015
65	5.42	0.23	0.151	(0.416)	0.136	0.015
66	5.50	0.23	0.151	(0.414)	0.136	0.015
67	5.58	0.27	0.172	(0.413)	0.155	0.017
68	5.67	0.27	0.172	(0.411)	0.155	0.017
69	5.75	0.27	0.172	(0.409)	0.155	0.017
70	5.83	0.27	0.172	(0.407)	0.155	0.017
71	5.92	0.27	0.172	(0.405)	0.155	0.017
72	6.00	0.27	0.172	(0.404)	0.155	0.017
73	6.08	0.30	0.194	(0.402)	0.175	0.019
74	6.17	0.30	0.194	(0.400)	0.175	0.019
75	6.25	0.30	0.194	(0.398)	0.175	0.019
76	6.33	0.30	0.194	(0.396)	0.175	0.019
77	6.42	0.30	0.194	(0.395)	0.175	0.019
78	6.50	0.30	0.194	(0.393)	0.175	0.019
79	6.58	0.33	0.216	(0.391)	0.194	0.022
80	6.67	0.33	0.216	(0.389)	0.194	0.022
81	6.75	0.33	0.216	(0.388)	0.194	0.022
82	6.83	0.33	0.216	(0.386)	0.194	0.022
83	6.92	0.33	0.216	(0.384)	0.194	0.022
84	7.00	0.33	0.216	(0.382)	0.194	0.022
85	7.08	0.33	0.216	(0.381)	0.194	0.022
86	7.17	0.33	0.216	(0.379)	0.194	0.022
87	7.25	0.33	0.216	(0.377)	0.194	0.022
88	7.33	0.37	0.237	(0.375)	0.213	0.024
89	7.42	0.37	0.237	(0.374)	0.213	0.024

90	7.50	0.37	0.237	(0.372)	0.213	0.024
91	7.58	0.40	0.259	(0.370)	0.233	0.026
92	7.67	0.40	0.259	(0.369)	0.233	0.026
93	7.75	0.40	0.259	(0.367)	0.233	0.026
94	7.83	0.43	0.280	(0.365)	0.252	0.028
95	7.92	0.43	0.280	(0.363)	0.252	0.028
96	8.00	0.43	0.280	(0.362)	0.252	0.028
97	8.08	0.50	0.323	(0.360)	0.291	0.032
98	8.17	0.50	0.323	(0.358)	0.291	0.032
99	8.25	0.50	0.323	(0.357)	0.291	0.032
100	8.33	0.50	0.323	(0.355)	0.291	0.032
101	8.42	0.50	0.323	(0.353)	0.291	0.032
102	8.50	0.50	0.323	(0.352)	0.291	0.032
103	8.58	0.53	0.345	(0.350)	0.310	0.034
104	8.67	0.53	0.345	(0.348)	0.310	0.034
105	8.75	0.53	0.345	(0.347)	0.310	0.034
106	8.83	0.57	0.367	(0.345)	0.330	0.037
107	8.92	0.57	0.367	(0.344)	0.330	0.037
108	9.00	0.57	0.367	(0.342)	0.330	0.037
109	9.08	0.63	0.410	0.340	(0.369)	0.069
110	9.17	0.63	0.410	0.339	(0.369)	0.071
111	9.25	0.63	0.410	0.337	(0.369)	0.073
112	9.33	0.67	0.431	0.335	(0.388)	0.096
113	9.42	0.67	0.431	0.334	(0.388)	0.097
114	9.50	0.67	0.431	0.332	(0.388)	0.099
115	9.58	0.70	0.453	0.331	(0.407)	0.122
116	9.67	0.70	0.453	0.329	(0.407)	0.124
117	9.75	0.70	0.453	0.328	(0.407)	0.125
118	9.83	0.73	0.474	0.326	(0.427)	0.148
119	9.92	0.73	0.474	0.324	(0.427)	0.150
120	10.00	0.73	0.474	0.323	(0.427)	0.152
121	10.08	0.50	0.323	(0.321)	0.291	0.032
122	10.17	0.50	0.323	(0.320)	0.291	0.032
123	10.25	0.50	0.323	(0.318)	0.291	0.032
124	10.33	0.50	0.323	(0.317)	0.291	0.032
125	10.42	0.50	0.323	(0.315)	0.291	0.032
126	10.50	0.50	0.323	(0.314)	0.291	0.032
127	10.58	0.67	0.431	0.312	(0.388)	0.119

128	10.67	0.67	0.431	0.310	(0.388)	0.121
129	10.75	0.67	0.431	0.309	(0.388)	0.122
130	10.83	0.67	0.431	0.307	(0.388)	0.124
131	10.92	0.67	0.431	0.306	(0.388)	0.125
132	11.00	0.67	0.431	0.304	(0.388)	0.127
133	11.08	0.63	0.410	0.303	(0.369)	0.107
134	11.17	0.63	0.410	0.301	(0.369)	0.108
135	11.25	0.63	0.410	0.300	(0.369)	0.110
136	11.33	0.63	0.410	0.298	(0.369)	0.111
137	11.42	0.63	0.410	0.297	(0.369)	0.113
138	11.50	0.63	0.410	0.296	(0.369)	0.114
139	11.58	0.57	0.367	0.294	(0.330)	0.072
140	11.67	0.57	0.367	0.293	(0.330)	0.074
141	11.75	0.57	0.367	0.291	(0.330)	0.075
142	11.83	0.60	0.388	0.290	(0.349)	0.098
143	11.92	0.60	0.388	0.288	(0.349)	0.100
144	12.00	0.60	0.388	0.287	(0.349)	0.101
145	12.08	0.83	0.539	0.285	(0.485)	0.254
146	12.17	0.83	0.539	0.284	(0.485)	0.255
147	12.25	0.83	0.539	0.283	(0.485)	0.256
148	12.33	0.87	0.561	0.281	(0.505)	0.279
149	12.42	0.87	0.561	0.280	(0.505)	0.281
150	12.50	0.87	0.561	0.278	(0.505)	0.282
151	12.58	0.93	0.604	0.277	(0.543)	0.327
152	12.67	0.93	0.604	0.275	(0.543)	0.328
153	12.75	0.93	0.604	0.274	(0.543)	0.330
154	12.83	0.97	0.625	0.273	(0.563)	0.353
155	12.92	0.97	0.625	0.271	(0.563)	0.354
156	13.00	0.97	0.625	0.270	(0.563)	0.355
157	13.08	1.13	0.733	0.269	(0.660)	0.464
158	13.17	1.13	0.733	0.267	(0.660)	0.466
159	13.25	1.13	0.733	0.266	(0.660)	0.467
160	13.33	1.13	0.733	0.265	(0.660)	0.469
161	13.42	1.13	0.733	0.263	(0.660)	0.470
162	13.50	1.13	0.733	0.262	(0.660)	0.471
163	13.58	0.77	0.496	0.261	(0.446)	0.235
164	13.67	0.77	0.496	0.259	(0.446)	0.237
165	13.75	0.77	0.496	0.258	(0.446)	0.238

166	13.83	0.77	0.496	0.257	(0.446)	0.239
167	13.92	0.77	0.496	0.255	(0.446)	0.241
168	14.00	0.77	0.496	0.254	(0.446)	0.242
169	14.08	0.90	0.582	0.253	(0.524)	0.329
170	14.17	0.90	0.582	0.251	(0.524)	0.331
171	14.25	0.90	0.582	0.250	(0.524)	0.332
172	14.33	0.87	0.561	0.249	(0.505)	0.312
173	14.42	0.87	0.561	0.248	(0.505)	0.313
174	14.50	0.87	0.561	0.246	(0.505)	0.314
175	14.58	0.87	0.561	0.245	(0.505)	0.316
176	14.67	0.87	0.561	0.244	(0.505)	0.317
177	14.75	0.87	0.561	0.242	(0.505)	0.318
178	14.83	0.83	0.539	0.241	(0.485)	0.298
179	14.92	0.83	0.539	0.240	(0.485)	0.299
180	15.00	0.83	0.539	0.239	(0.485)	0.300
181	15.08	0.80	0.517	0.238	(0.466)	0.280
182	15.17	0.80	0.517	0.236	(0.466)	0.281
183	15.25	0.80	0.517	0.235	(0.466)	0.282
184	15.33	0.77	0.496	0.234	(0.446)	0.262
185	15.42	0.77	0.496	0.233	(0.446)	0.263
186	15.50	0.77	0.496	0.232	(0.446)	0.264
187	15.58	0.63	0.410	0.230	(0.369)	0.179
188	15.67	0.63	0.410	0.229	(0.369)	0.180
189	15.75	0.63	0.410	0.228	(0.369)	0.182
190	15.83	0.63	0.410	0.227	(0.369)	0.183
191	15.92	0.63	0.410	0.226	(0.369)	0.184
192	16.00	0.63	0.410	0.224	(0.369)	0.185
193	16.08	0.13	0.086	(0.223)	0.078	0.009
194	16.17	0.13	0.086	(0.222)	0.078	0.009
195	16.25	0.13	0.086	(0.221)	0.078	0.009
196	16.33	0.13	0.086	(0.220)	0.078	0.009
197	16.42	0.13	0.086	(0.219)	0.078	0.009
198	16.50	0.13	0.086	(0.218)	0.078	0.009
199	16.58	0.10	0.065	(0.217)	0.058	0.006
200	16.67	0.10	0.065	(0.215)	0.058	0.006
201	16.75	0.10	0.065	(0.214)	0.058	0.006
202	16.83	0.10	0.065	(0.213)	0.058	0.006
203	16.92	0.10	0.065	(0.212)	0.058	0.006

204	17.00	0.10	0.065	(0.211)	0.058	0.006
205	17.08	0.17	0.108	(0.210)	0.097	0.011
206	17.17	0.17	0.108	(0.209)	0.097	0.011
207	17.25	0.17	0.108	(0.208)	0.097	0.011
208	17.33	0.17	0.108	(0.207)	0.097	0.011
209	17.42	0.17	0.108	(0.206)	0.097	0.011
210	17.50	0.17	0.108	(0.205)	0.097	0.011
211	17.58	0.17	0.108	(0.204)	0.097	0.011
212	17.67	0.17	0.108	(0.203)	0.097	0.011
213	17.75	0.17	0.108	(0.202)	0.097	0.011
214	17.83	0.13	0.086	(0.201)	0.078	0.009
215	17.92	0.13	0.086	(0.200)	0.078	0.009
216	18.00	0.13	0.086	(0.199)	0.078	0.009
217	18.08	0.13	0.086	(0.198)	0.078	0.009
218	18.17	0.13	0.086	(0.197)	0.078	0.009
219	18.25	0.13	0.086	(0.196)	0.078	0.009
220	18.33	0.13	0.086	(0.195)	0.078	0.009
221	18.42	0.13	0.086	(0.194)	0.078	0.009
222	18.50	0.13	0.086	(0.193)	0.078	0.009
223	18.58	0.10	0.065	(0.192)	0.058	0.006
224	18.67	0.10	0.065	(0.191)	0.058	0.006
225	18.75	0.10	0.065	(0.190)	0.058	0.006
226	18.83	0.07	0.043	(0.189)	0.039	0.004
227	18.92	0.07	0.043	(0.188)	0.039	0.004
228	19.00	0.07	0.043	(0.188)	0.039	0.004
229	19.08	0.10	0.065	(0.187)	0.058	0.006
230	19.17	0.10	0.065	(0.186)	0.058	0.006
231	19.25	0.10	0.065	(0.185)	0.058	0.006
232	19.33	0.13	0.086	(0.184)	0.078	0.009
233	19.42	0.13	0.086	(0.183)	0.078	0.009
234	19.50	0.13	0.086	(0.182)	0.078	0.009
235	19.58	0.10	0.065	(0.182)	0.058	0.006
236	19.67	0.10	0.065	(0.181)	0.058	0.006
237	19.75	0.10	0.065	(0.180)	0.058	0.006
238	19.83	0.07	0.043	(0.179)	0.039	0.004
239	19.92	0.07	0.043	(0.178)	0.039	0.004
240	20.00	0.07	0.043	(0.178)	0.039	0.004
241	20.08	0.10	0.065	(0.177)	0.058	0.006

242	20.17	0.10	0.065	(0.176)	0.058	0.006
243	20.25	0.10	0.065	(0.175)	0.058	0.006
244	20.33	0.10	0.065	(0.174)	0.058	0.006
245	20.42	0.10	0.065	(0.174)	0.058	0.006
246	20.50	0.10	0.065	(0.173)	0.058	0.006
247	20.58	0.10	0.065	(0.172)	0.058	0.006
248	20.67	0.10	0.065	(0.171)	0.058	0.006
249	20.75	0.10	0.065	(0.171)	0.058	0.006
250	20.83	0.07	0.043	(0.170)	0.039	0.004
251	20.92	0.07	0.043	(0.169)	0.039	0.004
252	21.00	0.07	0.043	(0.169)	0.039	0.004
253	21.08	0.10	0.065	(0.168)	0.058	0.006
254	21.17	0.10	0.065	(0.167)	0.058	0.006
255	21.25	0.10	0.065	(0.167)	0.058	0.006
256	21.33	0.07	0.043	(0.166)	0.039	0.004
257	21.42	0.07	0.043	(0.165)	0.039	0.004
258	21.50	0.07	0.043	(0.165)	0.039	0.004
259	21.58	0.10	0.065	(0.164)	0.058	0.006
260	21.67	0.10	0.065	(0.164)	0.058	0.006
261	21.75	0.10	0.065	(0.163)	0.058	0.006
262	21.83	0.07	0.043	(0.163)	0.039	0.004
263	21.92	0.07	0.043	(0.162)	0.039	0.004
264	22.00	0.07	0.043	(0.161)	0.039	0.004
265	22.08	0.10	0.065	(0.161)	0.058	0.006
266	22.17	0.10	0.065	(0.160)	0.058	0.006
267	22.25	0.10	0.065	(0.160)	0.058	0.006
268	22.33	0.07	0.043	(0.159)	0.039	0.004
269	22.42	0.07	0.043	(0.159)	0.039	0.004
270	22.50	0.07	0.043	(0.158)	0.039	0.004
271	22.58	0.07	0.043	(0.158)	0.039	0.004
272	22.67	0.07	0.043	(0.157)	0.039	0.004
273	22.75	0.07	0.043	(0.157)	0.039	0.004
274	22.83	0.07	0.043	(0.157)	0.039	0.004
275	22.92	0.07	0.043	(0.156)	0.039	0.004
276	23.00	0.07	0.043	(0.156)	0.039	0.004
277	23.08	0.07	0.043	(0.155)	0.039	0.004
278	23.17	0.07	0.043	(0.155)	0.039	0.004
279	23.25	0.07	0.043	(0.155)	0.039	0.004

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280  23.33     0.07      0.043       (  0.155)       0.039        0.004
281  23.42     0.07      0.043       (  0.154)       0.039        0.004
282  23.50     0.07      0.043       (  0.154)       0.039        0.004
283  23.58     0.07      0.043       (  0.154)       0.039        0.004
284  23.67     0.07      0.043       (  0.153)       0.039        0.004
285  23.75     0.07      0.043       (  0.153)       0.039        0.004
286  23.83     0.07      0.043       (  0.153)       0.039        0.004
287  23.92     0.07      0.043       (  0.153)       0.039        0.004
288  24.00     0.07      0.043       (  0.153)       0.039        0.004
           (Loss Rate Not Used)
    Sum =     100.0                                  Sum =    20.2
     Flood volume = Effective rainfall      1.68(In)
      times area       1.2(Ac.)/[(In)/(Ft.)] =       0.2(Ac.Ft)
     Total soil loss =      3.71(In)
     Total soil loss =     0.383(Ac.Ft)
     Total rainfall =      5.39(In)
     Flood volume =        7574.9 Cubic Feet
     Total soil loss =       16686.5 Cubic Feet
     ---------------------------------------------------------------------
      Peak flow rate of this hydrograph =      0.589(CFS)
     ---------------------------------------------------------------------
     +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                         24 - H O U R    S T O R M
                    R u n o f f      H y d r o g r a p h
     ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

     ---------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
 ---------------------------------------------------------------------
   0+ 5       0.0000      0.01  Q         |         |         |         |
   0+10       0.0001      0.01  Q         |         |         |         |
   0+15       0.0001      0.01  Q         |         |         |         |
   0+20       0.0002      0.01  Q         |         |         |         |
   0+25       0.0002      0.01  Q         |         |         |         |
   0+30       0.0003      0.01  Q         |         |         |         |
   0+35       0.0003      0.01  Q         |         |         |         |
   0+40       0.0004      0.01  Q         |         |         |         |
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0+45	0.0004	0.01	Q	|	|	|	|
0+50	0.0005	0.01	Q	|	|	|	|
0+55	0.0006	0.01	Q	|	|	|	|
1+ 0	0.0007	0.01	Q	|	|	|	|
1+ 5	0.0007	0.01	Q	|	|	|	|
1+10	0.0008	0.01	Q	|	|	|	|
1+15	0.0008	0.01	Q	|	|	|	|
1+20	0.0009	0.01	Q	|	|	|	|
1+25	0.0009	0.01	Q	|	|	|	|
1+30	0.0010	0.01	Q	|	|	|	|
1+35	0.0011	0.01	Q	|	|	|	|
1+40	0.0011	0.01	Q	|	|	|	|
1+45	0.0012	0.01	Q	|	|	|	|
1+50	0.0012	0.01	Q	|	|	|	|
1+55	0.0013	0.01	Q	|	|	|	|
2+ 0	0.0014	0.01	Q	|	|	|	|
2+ 5	0.0015	0.01	Q	|	|	|	|
2+10	0.0015	0.01	Q	|	|	|	|
2+15	0.0016	0.01	Q	|	|	|	|
2+20	0.0017	0.01	Q	|	|	|	|
2+25	0.0018	0.01	Q	|	|	|	|
2+30	0.0018	0.01	Q	|	|	|	|
2+35	0.0019	0.01	Q	|	|	|	|
2+40	0.0020	0.01	Q	|	|	|	|
2+45	0.0021	0.01	Q	|	|	|	|
2+50	0.0022	0.01	Q	|	|	|	|
2+55	0.0023	0.01	Q	|	|	|	|
3+ 0	0.0024	0.01	Q	|	|	|	|
3+ 5	0.0025	0.01	Q	|	|	|	|
3+10	0.0026	0.01	Q	|	|	|	|
3+15	0.0027	0.01	Q	|	|	|	|
3+20	0.0028	0.01	Q	|	|	|	|
3+25	0.0029	0.01	Q	|	|	|	|
3+30	0.0030	0.01	Q	|	|	|	|
3+35	0.0030	0.01	Q	|	|	|	|
3+40	0.0031	0.01	Q	|	|	|	|
3+45	0.0032	0.01	Q	|	|	|	|
3+50	0.0033	0.02	Q	|	|	|	|

3+55	0.0035	0.02	Q	|	|	|	|
4+ 0	0.0036	0.02	Q	|	|	|	|
4+ 5	0.0037	0.02	Q	|	|	|	|
4+10	0.0038	0.02	Q	|	|	|	|
4+15	0.0039	0.02	Q	|	|	|	|
4+20	0.0040	0.02	Q	|	|	|	|
4+25	0.0042	0.02	Q	|	|	|	|
4+30	0.0043	0.02	Q	|	|	|	|
4+35	0.0044	0.02	QV	|	|	|	|
4+40	0.0045	0.02	QV	|	|	|	|
4+45	0.0047	0.02	QV	|	|	|	|
4+50	0.0048	0.02	QV	|	|	|	|
4+55	0.0050	0.02	QV	|	|	|	|
5+ 0	0.0051	0.02	QV	|	|	|	|
5+ 5	0.0052	0.02	QV	|	|	|	|
5+10	0.0053	0.02	QV	|	|	|	|
5+15	0.0055	0.02	QV	|	|	|	|
5+20	0.0056	0.02	QV	|	|	|	|
5+25	0.0057	0.02	QV	|	|	|	|
5+30	0.0058	0.02	QV	|	|	|	|
5+35	0.0060	0.02	QV	|	|	|	|
5+40	0.0061	0.02	QV	|	|	|	|
5+45	0.0063	0.02	QV	|	|	|	|
5+50	0.0064	0.02	QV	|	|	|	|
5+55	0.0066	0.02	QV	|	|	|	|
6+ 0	0.0067	0.02	QV	|	|	|	|
6+ 5	0.0069	0.02	QV	|	|	|	|
6+10	0.0071	0.02	QV	|	|	|	|
6+15	0.0072	0.02	QV	|	|	|	|
6+20	0.0074	0.02	QV	|	|	|	|
6+25	0.0076	0.02	QV	|	|	|	|
6+30	0.0077	0.02	QV	|	|	|	|
6+35	0.0079	0.03	QV	|	|	|	|
6+40	0.0081	0.03	QV	|	|	|	|
6+45	0.0083	0.03	QV	|	|	|	|
6+50	0.0085	0.03	QV	|	|	|	|
6+55	0.0087	0.03	QV	|	|	|	|
7+ 0	0.0089	0.03	Q V	|	|	|	|

7+ 5	0.0090	0.03	Q V	|	|	|	|
7+10	0.0092	0.03	Q V	|	|	|	|
7+15	0.0094	0.03	Q V	|	|	|	|
7+20	0.0096	0.03	Q V	|	|	|	|
7+25	0.0098	0.03	Q V	|	|	|	|
7+30	0.0100	0.03	Q V	|	|	|	|
7+35	0.0102	0.03	Q V	|	|	|	|
7+40	0.0105	0.03	Q V	|	|	|	|
7+45	0.0107	0.03	Q V	|	|	|	|
7+50	0.0109	0.04	Q V	|	|	|	|
7+55	0.0112	0.04	Q V	|	|	|	|
8+ 0	0.0114	0.04	Q V	|	|	|	|
8+ 5	0.0117	0.04	Q V	|	|	|	|
8+10	0.0120	0.04	Q V	|	|	|	|
8+15	0.0123	0.04	Q V	|	|	|	|
8+20	0.0125	0.04	Q V	|	|	|	|
8+25	0.0128	0.04	Q V	|	|	|	|
8+30	0.0131	0.04	Q V	|	|	|	|
8+35	0.0134	0.04	Q V	|	|	|	|
8+40	0.0137	0.04	Q V	|	|	|	|
8+45	0.0140	0.04	Q V	|	|	|	|
8+50	0.0143	0.05	Q V	|	|	|	|
8+55	0.0146	0.05	Q V	|	|	|	|
9+ 0	0.0149	0.05	Q V	|	|	|	|
9+ 5	0.0155	0.09	Q V	|	|	|	|
9+10	0.0161	0.09	Q V	|	|	|	|
9+15	0.0168	0.09	Q V	|	|	|	|
9+20	0.0176	0.12	Q V	|	|	|	|
9+25	0.0184	0.12	Q V	|	|	|	|
9+30	0.0193	0.12	Q V	|	|	|	|
9+35	0.0203	0.15	Q V	|	|	|	|
9+40	0.0214	0.15	Q V	|	|	|	|
9+45	0.0225	0.16	Q V	|	|	|	|
9+50	0.0237	0.19	Q V	|	|	|	|
9+55	0.0250	0.19	Q V	|	|	|	|
10+ 0	0.0263	0.19	Q V	|	|	|	|
10+ 5	0.0266	0.04	Q V	|	|	|	|
10+10	0.0269	0.04	Q V	|	|	|	|

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10+15       0.0272      0.04  Q     V   |          |          |          |
10+20       0.0275      0.04  Q     V   |          |          |          |
10+25       0.0277      0.04  Q     V   |          |          |          |
10+30       0.0280      0.04  Q     V   |          |          |          |
10+35       0.0290      0.15  Q     V   |          |          |          |
10+40       0.0301      0.15  Q     V   |          |          |          |
10+45       0.0311      0.15  Q      V  |          |          |          |
10+50       0.0322      0.15  Q      V  |          |          |          |
10+55       0.0333      0.16  Q      V  |          |          |          |
11+ 0       0.0344      0.16  Q      V  |          |          |          |
11+ 5       0.0353      0.13  Q       V |          |          |          |
11+10       0.0362      0.14  Q       V |          |          |          |
11+15       0.0372      0.14  Q       V |          |          |          |
11+20       0.0381      0.14  Q       V |          |          |          |
11+25       0.0391      0.14  Q       V |          |          |          |
11+30       0.0401      0.14  Q        V|          |          |          |
11+35       0.0407      0.09  Q        V|          |          |          |
11+40       0.0413      0.09  Q        V|          |          |          |
11+45       0.0420      0.09  Q        V|          |          |          |
11+50       0.0428      0.12  Q        V|          |          |          |
11+55       0.0437      0.12  Q         V          |          |          |
12+ 0       0.0446      0.13  Q         V          |          |          |
12+ 5       0.0467      0.32  |Q        V          |          |          |
12+10       0.0489      0.32  |Q        |V         |          |          |
12+15       0.0512      0.32  |Q        |V         |          |          |
12+20       0.0536      0.35  |Q        | V        |          |          |
12+25       0.0560      0.35  |Q        | V        |          |          |
12+30       0.0584      0.35  |Q        |  V       |          |          |
12+35       0.0612      0.41  |Q        |   V      |          |          |
12+40       0.0640      0.41  |Q        |   V      |          |          |
12+45       0.0669      0.41  |Q        |    V     |          |          |
12+50       0.0699      0.44  |Q        |     V    |          |          |
12+55       0.0730      0.44  |Q        |     V    |          |          |
13+ 0       0.0760      0.44  |Q        |      V   |          |          |
13+ 5       0.0800      0.58  | Q       |       V  |          |          |
13+10       0.0840      0.58  | Q       |        V |          |          |
13+15       0.0881      0.58  | Q       |         V|          |          |
13+20       0.0921      0.59  | Q       |          |V         |          |
```

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13+25       0.0961      0.59  | Q       |          | V       |          |
13+30       0.1002      0.59  | Q       |          |  V      |          |
13+35       0.1022      0.29  |Q        |          |  V      |          |
13+40       0.1043      0.30  |Q        |          |  V      |          |
13+45       0.1063      0.30  |Q        |          |   V     |          |
13+50       0.1084      0.30  |Q        |          |   V     |          |
13+55       0.1104      0.30  |Q        |          |    V    |          |
14+ 0       0.1125      0.30  |Q        |          |    V    |          |
14+ 5       0.1154      0.41  |Q        |          |     V   |          |
14+10       0.1182      0.41  |Q        |          |      V  |          |
14+15       0.1211      0.42  |Q        |          |      V  |          |
14+20       0.1238      0.39  |Q        |          |       V |          |
14+25       0.1265      0.39  |Q        |          |        V|          |
14+30       0.1292      0.39  |Q        |          |        V|          |
14+35       0.1319      0.39  |Q        |          |         V          |
14+40       0.1346      0.40  |Q        |          |         V          |
14+45       0.1373      0.40  |Q        |          |          V         |
14+50       0.1399      0.37  |Q        |          |          | V       |
14+55       0.1425      0.37  |Q        |          |          | V       |
15+ 0       0.1451      0.38  |Q        |          |          |  V      |
15+ 5       0.1475      0.35  |Q        |          |          |  V      |
15+10       0.1499      0.35  |Q        |          |          |   V     |
15+15       0.1523      0.35  |Q        |          |          |    V    |
15+20       0.1546      0.33  |Q        |          |          |    V    |
15+25       0.1569      0.33  |Q        |          |          |     V   |
15+30       0.1591      0.33  |Q        |          |          |     V   |
15+35       0.1607      0.22  Q         |          |          |     V   |
15+40       0.1622      0.23  Q         |          |          |      V  |
15+45       0.1638      0.23  Q         |          |          |      V  |
15+50       0.1654      0.23  Q         |          |          |       V |
15+55       0.1670      0.23  Q         |          |          |       V |
16+ 0       0.1685      0.23  Q         |          |          |       V |
16+ 5       0.1686      0.01  Q         |          |          |       V |
16+10       0.1687      0.01  Q         |          |          |       V |
16+15       0.1688      0.01  Q         |          |          |       V |
16+20       0.1688      0.01  Q         |          |          |       V |
16+25       0.1689      0.01  Q         |          |          |       V |
16+30       0.1690      0.01  Q         |          |          |       V |
```

16+35	0.1691	0.01	Q	|	|	|	V |
16+40	0.1691	0.01	Q	|	|	|	V |
16+45	0.1692	0.01	Q	|	|	|	V |
16+50	0.1692	0.01	Q	|	|	|	V |
16+55	0.1693	0.01	Q	|	|	|	V |
17+ 0	0.1693	0.01	Q	|	|	|	V |
17+ 5	0.1694	0.01	Q	|	|	|	V |
17+10	0.1695	0.01	Q	|	|	|	V |
17+15	0.1696	0.01	Q	|	|	|	V|
17+20	0.1697	0.01	Q	|	|	|	V|
17+25	0.1698	0.01	Q	|	|	|	V|
17+30	0.1699	0.01	Q	|	|	|	V|
17+35	0.1700	0.01	Q	|	|	|	V|
17+40	0.1701	0.01	Q	|	|	|	V|
17+45	0.1702	0.01	Q	|	|	|	V|
17+50	0.1702	0.01	Q	|	|	|	V|
17+55	0.1703	0.01	Q	|	|	|	V|
18+ 0	0.1704	0.01	Q	|	|	|	V|
18+ 5	0.1705	0.01	Q	|	|	|	V|
18+10	0.1705	0.01	Q	|	|	|	V|
18+15	0.1706	0.01	Q	|	|	|	V|
18+20	0.1707	0.01	Q	|	|	|	V|
18+25	0.1708	0.01	Q	|	|	|	V|
18+30	0.1708	0.01	Q	|	|	|	V|
18+35	0.1709	0.01	Q	|	|	|	V|
18+40	0.1709	0.01	Q	|	|	|	V|
18+45	0.1710	0.01	Q	|	|	|	V|
18+50	0.1710	0.01	Q	|	|	|	V|
18+55	0.1711	0.01	Q	|	|	|	V|
19+ 0	0.1711	0.01	Q	|	|	|	V|
19+ 5	0.1712	0.01	Q	|	|	|	V|
19+10	0.1712	0.01	Q	|	|	|	V|
19+15	0.1713	0.01	Q	|	|	|	V|
19+20	0.1714	0.01	Q	|	|	|	V|
19+25	0.1714	0.01	Q	|	|	|	V|
19+30	0.1715	0.01	Q	|	|	|	V|
19+35	0.1716	0.01	Q	|	|	|	V|
19+40	0.1716	0.01	Q	|	|	|	V|

19+45	0.1717	0.01	Q	|	|	|	V|
19+50	0.1717	0.01	Q	|	|	|	V|
19+55	0.1717	0.01	Q	|	|	|	V|
20+ 0	0.1718	0.01	Q	|	|	|	V|
20+ 5	0.1718	0.01	Q	|	|	|	V|
20+10	0.1719	0.01	Q	|	|	|	V|
20+15	0.1719	0.01	Q	|	|	|	V|
20+20	0.1720	0.01	Q	|	|	|	V|
20+25	0.1721	0.01	Q	|	|	|	V|
20+30	0.1721	0.01	Q	|	|	|	V|
20+35	0.1722	0.01	Q	|	|	|	V|
20+40	0.1722	0.01	Q	|	|	|	V|
20+45	0.1723	0.01	Q	|	|	|	V|
20+50	0.1723	0.01	Q	|	|	|	V|
20+55	0.1724	0.01	Q	|	|	|	V|
21+ 0	0.1724	0.01	Q	|	|	|	V|
21+ 5	0.1724	0.01	Q	|	|	|	V|
21+10	0.1725	0.01	Q	|	|	|	V|
21+15	0.1726	0.01	Q	|	|	|	V|
21+20	0.1726	0.01	Q	|	|	|	V|
21+25	0.1726	0.01	Q	|	|	|	V|
21+30	0.1727	0.01	Q	|	|	|	V|
21+35	0.1727	0.01	Q	|	|	|	V|
21+40	0.1728	0.01	Q	|	|	|	V|
21+45	0.1728	0.01	Q	|	|	|	V|
21+50	0.1729	0.01	Q	|	|	|	V|
21+55	0.1729	0.01	Q	|	|	|	V|
22+ 0	0.1729	0.01	Q	|	|	|	V|
22+ 5	0.1730	0.01	Q	|	|	|	V|
22+10	0.1731	0.01	Q	|	|	|	V|
22+15	0.1731	0.01	Q	|	|	|	V|
22+20	0.1732	0.01	Q	|	|	|	V|
22+25	0.1732	0.01	Q	|	|	|	V|
22+30	0.1732	0.01	Q	|	|	|	V|
22+35	0.1733	0.01	Q	|	|	|	V|
22+40	0.1733	0.01	Q	|	|	|	V|
22+45	0.1733	0.01	Q	|	|	|	V|
22+50	0.1734	0.01	Q	|	|	|	V|

```
   22+55       0.1734      0.01  Q          |          |          |         V|
   23+ 0       0.1735      0.01  Q          |          |          |         V|
   23+ 5       0.1735      0.01  Q          |          |          |         V|
   23+10       0.1735      0.01  Q          |          |          |         V|
   23+15       0.1736      0.01  Q          |          |          |         V|
   23+20       0.1736      0.01  Q          |          |          |         V|
   23+25       0.1736      0.01  Q          |          |          |         V|
   23+30       0.1737      0.01  Q          |          |          |         V|
   23+35       0.1737      0.01  Q          |          |          |         V|
   23+40       0.1737      0.01  Q          |          |          |         V|
   23+45       0.1738      0.01  Q          |          |          |         V|
   23+50       0.1738      0.01  Q          |          |          |         V|
   23+55       0.1739      0.01  Q          |          |          |         V|
   24+ 0       0.1739      0.01  Q          |          |          |          V
-------------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 13- 100 YR, 1-hr

Drainage Area = 0.99(Ac.) = 0.002 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 0.99(Ac.) = 0.002 Sq. Mi.
Length along longest watercourse = 100.00(Ft.)
Length along longest watercourse measured to centroid = 50.00(Ft.)
Length along longest watercourse = 0.019 Mi.
Length along longest watercourse measured to centroid = 0.009 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 52.8000 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.006 Hr.
Lag time =     0.38 Min.
25% of lag time =     0.10 Min.
40% of lag time =     0.15 Min.
Unit time =     5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.99             0.51                 0.51

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.99             1.61                 1.59

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.514(In)
Area Averaged 100-Year Rainfall =    1.610(In)

Point rain (area averaged) =    1.610(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    1.610(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     0.990           65.30         0.200
 Total Area Entered =      0.99(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
65.3  65.3      0.413     0.200        0.338        1.000      0.338
```

Sum (F) = 0.338

Area averaged mean soil loss (F) (In/Hr) = 0.338
Minimum soil loss rate ((In/Hr)) = 0.169
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

Slope of intensity-duration curve for a 1 hour storm =0.5500

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	100.000	0.998
	Sum =	100.000 Sum=	0.998

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	3.30	0.638	0.338	(0.574)	0.299
2	0.17	4.20	0.811	0.338	(0.730)	0.473
3	0.25	4.40	0.850	0.338	(0.765)	0.512
4	0.33	4.80	0.927	0.338	(0.835)	0.589
5	0.42	5.20	1.005	0.33		

U n i t H y d r o g r a p h A n a l y s i s

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Study date 01/03/23 File: VOLT133100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 13- 100 YR, 3-hr

Drainage Area = 0.99(Ac.) = 0.002 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 0.99(Ac.) = 0.002 Sq. Mi.
Length along longest watercourse = 100.00(Ft.)
Length along longest watercourse measured to centroid = 50.00(Ft.)
Length along longest watercourse = 0.019 Mi.
Length along longest watercourse measured to centroid = 0.009 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 52.8000 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.006 Hr.
Lag time =     0.38 Min.
25% of lag time =     0.10 Min.
40% of lag time =     0.15 Min.
Unit time =     5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.99             0.86                 0.86

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.99             2.25                 2.23

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.864(In)
Area Averaged 100-Year Rainfall =    2.250(In)

Point rain (area averaged) =    2.250(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.250(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     0.990           65.30         0.200
 Total Area Entered =      0.99(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
65.3  65.3      0.413     0.200        0.338       1.000      0.338
```

Sum (F) = 0.338

Area averaged mean soil loss (F) (In/Hr) = 0.338
Minimum soil loss rate ((In/Hr)) = 0.169
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	1304.397	100.000	0.998
		Sum = 100.000	Sum= 0.998

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.351	(0.338)	0.316	0.035
2	0.17	1.30	0.351	(0.338)	0.316	0.035
3	0.25	1.10	0.297	(0.338)	0.267	0.030
4	0.33	1.50	0.405	0.338	(0.364)	0.067
5	0.42	1.50	0.405	0.338	(0.364)	0.067
6	0.50	1.80	0.486	0.338	(0.437)	0.148
7	0.58	1.50	0.405	0.338	(0.364)	0.067
8	0.67	1.80	0.486	0.338	(0.437)	0.148
9	0.75	1.80	0.486	0.338	(0.437)	0.148
10	0.83	1.50	0.405	0.338	(0.364)	0.067
11	0.92	1.60	0.432	0.338	(0.389)	0.094
12	1.00	1.80	0.486	0.338	(0.437)	0.148
13	1.08	2.20	0.594	0.338	(0.535)	0.256

```
14   1.17     2.20      0.594          0.338    (  0.535)         0.256
15   1.25     2.20      0.594          0.338    (  0.535)         0.256
16   1.33     2.00      0.540          0.338    (  0.486)         0.202
17   1.42     2.60      0.702          0.338    (  0.632)         0.364
18   1.50     2.70      0.729          0.338    (  0.656)         0.391
19   1.58     2.40      0.648          0.338    (  0.583)         0.310
20   1.67     2.70      0.729          0.338    (  0.656)         0.391
21   1.75     3.30      0.891          0.338    (  0.802)         0.553
22   1.83     3.10      0.837          0.338    (  0.753)         0.499
23   1.92     2.90      0.783          0.338    (  0.705)         0.445
24   2.00     3.00      0.810          0.338    (  0.729)         0.472
25   2.08     3.10      0.837          0.338    (  0.753)         0.499
26   2.17     4.20      1.134          0.338    (  1.021)         0.796
27   2.25     5.00      1.350          0.338    (  1.215)         1.012
28   2.33     3.50      0.945          0.338    (  0.850)         0.607
29   2.42     6.80      1.836          0.338    (  1.652)         1.498
30   2.50     7.30      1.971          0.338    (  1.774)         1.633
31   2.58     8.20      2.214          0.338    (  1.993)         1.876
32   2.67     5.90      1.593          0.338    (  1.434)         1.255
33   2.75     2.00      0.540          0.338    (  0.486)         0.202
34   2.83     1.80      0.486          0.338    (  0.437)         0.148
35   2.92     1.80      0.486          0.338    (  0.437)         0.148
36   3.00     0.60      0.162       (  0.338)       0.146         0.016
          (Loss Rate Not Used)
   Sum =     100.0                                    Sum =    15.1
    Flood volume = Effective rainfall      1.26(In)
     times area       1.0(Ac.)/[(In)/(Ft.)] =       0.1(Ac.Ft)
    Total soil loss =      0.99(In)
    Total soil loss =     0.082(Ac.Ft)
    Total rainfall =      2.25(In)
    Flood volume =        4529.3 Cubic Feet
    Total soil loss =        3556.5 Cubic Feet
    ---------------------------------------------------------------------
     Peak flow rate of this hydrograph =      1.872(CFS)
    ---------------------------------------------------------------------
    +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        3 - H O U R    S T O R M
                    R u n o f f      H y d r o g r a p h
```

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0002	0.04	Q				
0+10	0.0005	0.04	Q				
0+15	0.0007	0.03	Q				
0+20	0.0011	0.07	Q				
0+25	0.0016	0.07	Q				
0+30	0.0026	0.15	QV				
0+35	0.0031	0.07	QV				
0+40	0.0041	0.15	QV				
0+45	0.0051	0.15	QV				
0+50	0.0056	0.07	Q V				
0+55	0.0062	0.09	Q V				

U n i t H y d r o g r a p h A n a l y s i s

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Study date 01/03/23 File: VOLT136100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 13- 100 YR, 6-hr

Drainage Area = 0.99(Ac.) = 0.002 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 0.99(Ac.) = 0.002 Sq. Mi.
Length along longest watercourse = 100.00(Ft.)
Length along longest watercourse measured to centroid = 50.00(Ft.)
Length along longest watercourse = 0.019 Mi.
Length along longest watercourse measured to centroid = 0.009 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 52.8000 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.006 Hr.
Lag time =     0.38 Min.
25% of lag time =     0.10 Min.
40% of lag time =     0.15 Min.
Unit time =     5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.99             1.20                 1.19

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.99             2.99                 2.96

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.200(In)
Area Averaged 100-Year Rainfall =    2.990(In)

Point rain (area averaged) =    2.990(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.990(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     0.990           65.30         0.200
 Total Area Entered =      0.99(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
65.3  65.3      0.413     0.200        0.338       1.000      0.338
```

Sum (F) = 0.338

Area averaged mean soil loss (F) (In/Hr) = 0.338
Minimum soil loss rate ((In/Hr)) = 0.169
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	1304.397	100.000	0.998
		Sum = 100.000	Sum= 0.998

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max		Low	Effective (In/Hr)
1	0.08	0.50	0.179	(0.338)		0.161	0.018
2	0.17	0.60	0.215	(0.338)		0.194	0.022
3	0.25	0.60	0.215	(0.338)		0.194	0.022
4	0.33	0.60	0.215	(0.338)		0.194	0.022
5	0.42	0.60	0.215	(0.338)		0.194	0.022
6	0.50	0.70	0.251	(0.338)		0.226	0.025
7	0.58	0.70	0.251	(0.338)		0.226	0.025
8	0.67	0.70	0.251	(0.338)		0.226	0.025
9	0.75	0.70	0.251	(0.338)		0.226	0.025
10	0.83	0.70	0.251	(0.338)		0.226	0.025
11	0.92	0.70	0.251	(0.338)		0.226	0.025
12	1.00	0.80	0.287	(0.338)		0.258	0.029
13	1.08	0.80	0.287	(0.338)		0.258	0.029

14	1.17	0.80	0.287	(0.338)	0.258	0.029
15	1.25	0.80	0.287	(0.338)	0.258	0.029
16	1.33	0.80	0.287	(0.338)	0.258	0.029
17	1.42	0.80	0.287	(0.338)	0.258	0.029
18	1.50	0.80	0.287	(0.338)	0.258	0.029
19	1.58	0.80	0.287	(0.338)	0.258	0.029
20	1.67	0.80	0.287	(0.338)	0.258	0.029
21	1.75	0.80	0.287	(0.338)	0.258	0.029
22	1.83	0.80	0.287	(0.338)	0.258	0.029
23	1.92	0.80	0.287	(0.338)	0.258	0.029
24	2.00	0.90	0.323	(0.338)	0.291	0.032
25	2.08	0.80	0.287	(0.338)	0.258	0.029
26	2.17	0.90	0.323	(0.338)	0.291	0.032
27	2.25	0.90	0.323	(0.338)	0.291	0.032
28	2.33	0.90	0.323	(0.338)	0.291	0.032
29	2.42	0.90	0.323	(0.338)	0.291	0.032
30	2.50	0.90	0.323	(0.338)	0.291	0.032
31	2.58	0.90	0.323	(0.338)	0.291	0.032
32	2.67	0.90	0.323	(0.338)	0.291	0.032
33	2.75	1.00	0.359	(0.338)	0.323	0.036
34	2.83	1.00	0.359	(0.338)	0.323	0.036
35	2.92	1.00	0.359	(0.338)	0.323	0.036
36	3.00	1.00	0.359	(0.338)	0.323	0.036
37	3.08	1.00	0.359	(0.338)	0.323	0.036
38	3.17	1.10	0.395	0.338	(0.355)	0.056
39	3.25	1.10	0.395	0.338	(0.355)	0.056
40	3.33	1.10	0.395	0.338	(0.355)	0.056
41	3.42	1.20	0.431	0.338	(0.388)	0.092
42	3.50	1.30	0.466	0.338	(0.420)	0.128
43	3.58	1.40	0.502	0.338	(0.452)	0.164
44	3.67	1.40	0.502	0.338	(0.452)	0.164
45	3.75	1.50	0.538	0.338	(0.484)	0.200
46	3.83	1.50	0.538	0.338	(0.484)	0.200
47	3.92	1.60	0.574	0.338	(0.517)	0.236
48	4.00	1.60	0.574	0.338	(0.517)	0.236
49	4.08	1.70	0.610	0.338	(0.549)	0.271
50	4.17	1.80	0.646	0.338	(0.581)	0.307
51	4.25	1.90	0.682	0.338	(0.614)	0.343

```
52   4.33     2.00      0.718          0.338    (  0.646)        0.379
53   4.42     2.10      0.753          0.338    (  0.678)        0.415
54   4.50     2.10      0.753          0.338    (  0.678)        0.415
55   4.58     2.20      0.789          0.338    (  0.710)        0.451
56   4.67     2.30      0.825          0.338    (  0.743)        0.487
57   4.75     2.40      0.861          0.338    (  0.775)        0.523
58   4.83     2.40      0.861          0.338    (  0.775)        0.523
59   4.92     2.50      0.897          0.338    (  0.807)        0.559
60   5.00     2.60      0.933          0.338    (  0.840)        0.594
61   5.08     3.10      1.112          0.338    (  1.001)        0.774
62   5.17     3.60      1.292          0.338    (  1.163)        0.953
63   5.25     3.90      1.399          0.338    (  1.259)        1.061
64   5.33     4.20      1.507          0.338    (  1.356)        1.168
65   5.42     4.70      1.686          0.338    (  1.518)        1.348
66   5.50     5.60      2.009          0.338    (  1.808)        1.671
67   5.58     1.90      0.682          0.338    (  0.614)        0.343
68   5.67     0.90      0.323       (  0.338)       0.291        0.032
69   5.75     0.60      0.215       (  0.338)       0.194        0.022
70   5.83     0.50      0.179       (  0.338)       0.161        0.018
71   5.92     0.30      0.108       (  0.338)       0.097        0.011
72   6.00     0.20      0.072       (  0.338)       0.065        0.007
          (Loss Rate Not Used)
   Sum =     100.0                                   Sum =    15.3
    Flood volume = Effective rainfall      1.28(In)
     times area       1.0(Ac.)/[(In)/(Ft.)] =       0.1(Ac.Ft)
    Total soil loss =      1.71(In)
    Total soil loss =     0.141(Ac.Ft)
    Total rainfall =      2.99(In)
    Flood volume =        4590.4 Cubic Feet
    Total soil loss =        6154.8 Cubic Feet
    ---------------------------------------------------------------------
     Peak flow rate of this hydrograph =      1.668(CFS)
    ---------------------------------------------------------------------
    +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        6 - H O U R    S T O R M
                    R u n o f f      H y d r o g r a p h
    ---------------------------------------------------------------------
                Hydrograph in   5   Minute intervals ((CFS))
```

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0001	0.02	Q	|	|	|	|
0+10	0.0003	0.02	Q	|	|	|	|
0+15	0.0004	0.02	Q	|	|	|	|
0+20	0.0006	0.02	Q	|	|	|	|
0+25	0.0007	0.02	Q	|	|	|	|
0+30	0.0009	0.03	Q	|	|	|	|
0+35	0.0011	0.03	Q	|	|	|	|
0+40	0.0012	0.03	Q	|	|	|	|
0+45	0.0014	0.03	Q	|	|	|	|
0+50	0.0016	0.03	Q	|	|	|	|
0+55	0.0018	0.03	Q	|	|	|	|
1+ 0	0.0019	0.03	Q	|	|	|	|
1+ 5	0.0021	0.03	Q	|	|	|	|
1+10	0.0023	0.03	Q	|	|	|	|
1+15	0.0025	0.03	Q	|	|	|	|
1+20	0.0027	0.03	QV	|	|	|	|
1+25	0.0029	0.03	QV	|	|	|	|
1+30	0.0031	0.03	QV	|	|	|	|
1+35	0.0033	0.03	QV	|	|	|	|
1+40	0.0035	0.03	QV	|	|	|	|
1+45	0.0037	0.03	QV	|	|	|	|
1+50	0.0039	0.03	QV	|	|	|	|
1+55	0.0041	0.03	QV	|	|	|	|
2+ 0	0.0043	0.03	QV	|	|	|	|
2+ 5	0.0045	0.03	QV	|	|	|	|
2+10	0.0048	0.03	QV	|	|	|	|
2+15	0.0050	0.03	QV	|	|	|	|
2+20	0.0052	0.03	QV	|	|	|	|
2+25	0.0054	0.03	Q V	|	|	|	|
2+30	0.0056	0.03	Q V	|	|	|	|
2+35	0.0059						

U n i t H y d r o g r a p h A n a l y s i s

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Study date 01/03/23 File: VOLT1324100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 13- 100 YR, 24-hr

Drainage Area = 0.99(Ac.) = 0.002 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 0.99(Ac.) = 0.002 Sq. Mi.
Length along longest watercourse = 100.00(Ft.)
Length along longest watercourse measured to centroid = 50.00(Ft.)
Length along longest watercourse = 0.019 Mi.
Length along longest watercourse measured to centroid = 0.009 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 52.8000 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.006 Hr.
Lag time =     0.38 Min.
25% of lag time =     0.10 Min.
40% of lag time =     0.15 Min.
Unit time =     5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.99             2.06                 2.04

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.99             5.39                 5.34

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    2.060(In)
Area Averaged 100-Year Rainfall =    5.390(In)

Point rain (area averaged) =    5.390(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    5.390(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     0.990           65.30         0.200
 Total Area Entered =      0.99(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
65.3  65.3      0.413     0.200        0.338       1.000      0.338
```

Sum (F) = 0.338

Area averaged mean soil loss (F) (In/Hr) = 0.338
Minimum soil loss rate ((In/Hr)) = 0.169
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	1304.397	100.000	0.998
		Sum = 100.000	Sum= 0.998

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.043	(0.600)	0.039	0.004
2	0.17	0.07	0.043	(0.598)	0.039	0.004
3	0.25	0.07	0.043	(0.595)	0.039	0.004
4	0.33	0.10	0.065	(0.593)	0.058	0.006
5	0.42	0.10	0.065	(0.591)	0.058	0.006
6	0.50	0.10	0.065	(0.588)	0.058	0.006
7	0.58	0.10	0.065	(0.586)	0.058	0.006
8	0.67	0.10	0.065	(0.584)	0.058	0.006
9	0.75	0.10	0.065	(0.582)	0.058	0.006
10	0.83	0.13	0.086	(0.579)	0.078	0.009
11	0.92	0.13	0.086	(0.577)	0.078	0.009
12	1.00	0.13	0.086	(0.575)	0.078	0.009
13	1.08	0.10	0.065	(0.572)	0.058	0.006

14	1.17	0.10	0.065	(0.570)	0.058	0.006
15	1.25	0.10	0.065	(0.568)	0.058	0.006
16	1.33	0.10	0.065	(0.566)	0.058	0.006
17	1.42	0.10	0.065	(0.563)	0.058	0.006
18	1.50	0.10	0.065	(0.561)	0.058	0.006
19	1.58	0.10	0.065	(0.559)	0.058	0.006
20	1.67	0.10	0.065	(0.557)	0.058	0.006
21	1.75	0.10	0.065	(0.554)	0.058	0.006
22	1.83	0.13	0.086	(0.552)	0.078	0.009
23	1.92	0.13	0.086	(0.550)	0.078	0.009
24	2.00	0.13	0.086	(0.548)	0.078	0.009
25	2.08	0.13	0.086	(0.546)	0.078	0.009
26	2.17	0.13	0.086	(0.543)	0.078	0.009
27	2.25	0.13	0.086	(0.541)	0.078	0.009
28	2.33	0.13	0.086	(0.539)	0.078	0.009
29	2.42	0.13	0.086	(0.537)	0.078	0.009
30	2.50	0.13	0.086	(0.535)	0.078	0.009
31	2.58	0.17	0.108	(0.532)	0.097	0.011
32	2.67	0.17	0.108	(0.530)	0.097	0.011
33	2.75	0.17	0.108	(0.528)	0.097	0.011
34	2.83	0.17	0.108	(0.526)	0.097	0.011
35	2.92	0.17	0.108	(0.524)	0.097	0.011
36	3.00	0.17	0.108	(0.521)	0.097	0.011
37	3.08	0.17	0.108	(0.519)	0.097	0.011
38	3.17	0.17	0.108	(0.517)	0.097	0.011
39	3.25	0.17	0.108	(0.515)	0.097	0.011
40	3.33	0.17	0.108	(0.513)	0.097	0.011
41	3.42	0.17	0.108	(0.511)	0.097	0.011
42	3.50	0.17	0.108	(0.509)	0.097	0.011
43	3.58	0.17	0.108	(0.506)	0.097	0.011
44	3.67	0.17	0.108	(0.504)	0.097	0.011
45	3.75	0.17	0.108	(0.502)	0.097	0.011
46	3.83	0.20	0.129	(0.500)	0.116	0.013
47	3.92	0.20	0.129	(0.498)	0.116	0.013
48	4.00	0.20	0.129	(0.496)	0.116	0.013
49	4.08	0.20	0.129	(0.494)	0.116	0.013
50	4.17	0.20	0.129	(0.492)	0.116	0.013
51	4.25	0.20	0.129	(0.490)	0.116	0.013

52	4.33	0.23	0.151	(0.488)	0.136	0.015
53	4.42	0.23	0.151	(0.485)	0.136	0.015
54	4.50	0.23	0.151	(0.483)	0.136	0.015
55	4.58	0.23	0.151	(0.481)	0.136	0.015
56	4.67	0.23	0.151	(0.479)	0.136	0.015
57	4.75	0.23	0.151	(0.477)	0.136	0.015
58	4.83	0.27	0.172	(0.475)	0.155	0.017
59	4.92	0.27	0.172	(0.473)	0.155	0.017
60	5.00	0.27	0.172	(0.471)	0.155	0.017
61	5.08	0.20	0.129	(0.469)	0.116	0.013
62	5.17	0.20	0.129	(0.467)	0.116	0.013
63	5.25	0.20	0.129	(0.465)	0.116	0.013
64	5.33	0.23	0.151	(0.463)	0.136	0.015
65	5.42	0.23	0.151	(0.461)	0.136	0.015
66	5.50	0.23	0.151	(0.459)	0.136	0.015
67	5.58	0.27	0.172	(0.457)	0.155	0.017
68	5.67	0.27	0.172	(0.455)	0.155	0.017
69	5.75	0.27	0.172	(0.453)	0.155	0.017
70	5.83	0.27	0.172	(0.451)	0.155	0.017
71	5.92	0.27	0.172	(0.449)	0.155	0.017
72	6.00	0.27	0.172	(0.447)	0.155	0.017
73	6.08	0.30	0.194	(0.445)	0.175	0.019
74	6.17	0.30	0.194	(0.443)	0.175	0.019
75	6.25	0.30	0.194	(0.441)	0.175	0.019
76	6.33	0.30	0.194	(0.439)	0.175	0.019
77	6.42	0.30	0.194	(0.437)	0.175	0.019
78	6.50	0.30	0.194	(0.435)	0.175	0.019
79	6.58	0.33	0.216	(0.433)	0.194	0.022
80	6.67	0.33	0.216	(0.431)	0.194	0.022
81	6.75	0.33	0.216	(0.429)	0.194	0.022
82	6.83	0.33	0.216	(0.427)	0.194	0.022
83	6.92	0.33	0.216	(0.425)	0.194	0.022
84	7.00	0.33	0.216	(0.423)	0.194	0.022
85	7.08	0.33	0.216	(0.421)	0.194	0.022
86	7.17	0.33	0.216	(0.419)	0.194	0.022
87	7.25	0.33	0.216	(0.418)	0.194	0.022
88	7.33	0.37	0.237	(0.416)	0.213	0.024
89	7.42	0.37	0.237	(0.414)	0.213	0.024

90	7.50	0.37	0.237	(0.412)	0.213	0.024
91	7.58	0.40	0.259	(0.410)	0.233	0.026
92	7.67	0.40	0.259	(0.408)	0.233	0.026
93	7.75	0.40	0.259	(0.406)	0.233	0.026
94	7.83	0.43	0.280	(0.404)	0.252	0.028
95	7.92	0.43	0.280	(0.402)	0.252	0.028
96	8.00	0.43	0.280	(0.401)	0.252	0.028
97	8.08	0.50	0.323	(0.399)	0.291	0.032
98	8.17	0.50	0.323	(0.397)	0.291	0.032
99	8.25	0.50	0.323	(0.395)	0.291	0.032
100	8.33	0.50	0.323	(0.393)	0.291	0.032
101	8.42	0.50	0.323	(0.391)	0.291	0.032
102	8.50	0.50	0.323	(0.389)	0.291	0.032
103	8.58	0.53	0.345	(0.388)	0.310	0.034
104	8.67	0.53	0.345	(0.386)	0.310	0.034
105	8.75	0.53	0.345	(0.384)	0.310	0.034
106	8.83	0.57	0.367	(0.382)	0.330	0.037
107	8.92	0.57	0.367	(0.380)	0.330	0.037
108	9.00	0.57	0.367	(0.379)	0.330	0.037
109	9.08	0.63	0.410	(0.377)	0.369	0.041
110	9.17	0.63	0.410	(0.375)	0.369	0.041
111	9.25	0.63	0.410	(0.373)	0.369	0.041
112	9.33	0.67	0.431	0.371	(0.388)	0.060
113	9.42	0.67	0.431	0.370	(0.388)	0.062
114	9.50	0.67	0.431	0.368	(0.388)	0.063
115	9.58	0.70	0.453	0.366	(0.407)	0.087
116	9.67	0.70	0.453	0.364	(0.407)	0.088
117	9.75	0.70	0.453	0.363	(0.407)	0.090
118	9.83	0.73	0.474	0.361	(0.427)	0.113
119	9.92	0.73	0.474	0.359	(0.427)	0.115
120	10.00	0.73	0.474	0.357	(0.427)	0.117
121	10.08	0.50	0.323	(0.356)	0.291	0.032
122	10.17	0.50	0.323	(0.354)	0.291	0.032
123	10.25	0.50	0.323	(0.352)	0.291	0.032
124	10.33	0.50	0.323	(0.351)	0.291	0.032
125	10.42	0.50	0.323	(0.349)	0.291	0.032
126	10.50	0.50	0.323	(0.347)	0.291	0.032
127	10.58	0.67	0.431	0.345	(0.388)	0.086

128	10.67	0.67	0.431	0.344	(0.388)	0.087
129	10.75	0.67	0.431	0.342	(0.388)	0.089
130	10.83	0.67	0.431	0.340	(0.388)	0.091
131	10.92	0.67	0.431	0.339	(0.388)	0.092
132	11.00	0.67	0.431	0.337	(0.388)	0.094
133	11.08	0.63	0.410	0.335	(0.369)	0.074
134	11.17	0.63	0.410	0.334	(0.369)	0.076
135	11.25	0.63	0.410	0.332	(0.369)	0.078
136	11.33	0.63	0.410	0.330	(0.369)	0.079
137	11.42	0.63	0.410	0.329	(0.369)	0.081
138	11.50	0.63	0.410	0.327	(0.369)	0.082
139	11.58	0.57	0.367	0.326	(0.330)	0.041
140	11.67	0.57	0.367	0.324	(0.330)	0.043
141	11.75	0.57	0.367	0.322	(0.330)	0.044
142	11.83	0.60	0.388	0.321	(0.349)	0.067
143	11.92	0.60	0.388	0.319	(0.349)	0.069
144	12.00	0.60	0.388	0.318	(0.349)	0.071
145	12.08	0.83	0.539	0.316	(0.485)	0.223
146	12.17	0.83	0.539	0.314	(0.485)	0.225
147	12.25	0.83	0.539	0.313	(0.485)	0.226
148	12.33	0.87	0.561	0.311	(0.505)	0.249
149	12.42	0.87	0.561	0.310	(0.505)	0.251
150	12.50	0.87	0.561	0.308	(0.505)	0.252
151	12.58	0.93	0.604	0.307	(0.543)	0.297
152	12.67	0.93	0.604	0.305	(0.543)	0.299
153	12.75	0.93	0.604	0.303	(0.543)	0.300
154	12.83	0.97	0.625	0.302	(0.563)	0.323
155	12.92	0.97	0.625	0.300	(0.563)	0.325
156	13.00	0.97	0.625	0.299	(0.563)	0.326
157	13.08	1.13	0.733	0.297	(0.660)	0.436
158	13.17	1.13	0.733	0.296	(0.660)	0.437
159	13.25	1.13	0.733	0.294	(0.660)	0.439
160	13.33	1.13	0.733	0.293	(0.660)	0.440
161	13.42	1.13	0.733	0.291	(0.660)	0.442
162	13.50	1.13	0.733	0.290	(0.660)	0.443
163	13.58	0.77	0.496	0.288	(0.446)	0.207
164	13.67	0.77	0.496	0.287	(0.446)	0.209
165	13.75	0.77	0.496	0.285	(0.446)	0.210

166	13.83	0.77	0.496	0.284	(0.446)	0.212
167	13.92	0.77	0.496	0.283	(0.446)	0.213
168	14.00	0.77	0.496	0.281	(0.446)	0.215
169	14.08	0.90	0.582	0.280	(0.524)	0.302
170	14.17	0.90	0.582	0.278	(0.524)	0.304
171	14.25	0.90	0.582	0.277	(0.524)	0.305
172	14.33	0.87	0.561	0.275	(0.505)	0.285
173	14.42	0.87	0.561	0.274	(0.505)	0.287
174	14.50	0.87	0.561	0.273	(0.505)	0.288
175	14.58	0.87	0.561	0.271	(0.505)	0.289
176	14.67	0.87	0.561	0.270	(0.505)	0.291
177	14.75	0.87	0.561	0.268	(0.505)	0.292
178	14.83	0.83	0.539	0.267	(0.485)	0.272
179	14.92	0.83	0.539	0.266	(0.485)	0.273
180	15.00	0.83	0.539	0.264	(0.485)	0.275
181	15.08	0.80	0.517	0.263	(0.466)	0.254
182	15.17	0.80	0.517	0.262	(0.466)	0.256
183	15.25	0.80	0.517	0.260	(0.466)	0.257
184	15.33	0.77	0.496	0.259	(0.446)	0.237
185	15.42	0.77	0.496	0.258	(0.446)	0.238
186	15.50	0.77	0.496	0.256	(0.446)	0.240
187	15.58	0.63	0.410	0.255	(0.369)	0.155
188	15.67	0.63	0.410	0.254	(0.369)	0.156
189	15.75	0.63	0.410	0.252	(0.369)	0.157
190	15.83	0.63	0.410	0.251	(0.369)	0.159
191	15.92	0.63	0.410	0.250	(0.369)	0.160
192	16.00	0.63	0.410	0.249	(0.369)	0.161
193	16.08	0.13	0.086	(0.247)	0.078	0.009
194	16.17	0.13	0.086	(0.246)	0.078	0.009
195	16.25	0.13	0.086	(0.245)	0.078	0.009
196	16.33	0.13	0.086	(0.244)	0.078	0.009
197	16.42	0.13	0.086	(0.242)	0.078	0.009
198	16.50	0.13	0.086	(0.241)	0.078	0.009
199	16.58	0.10	0.065	(0.240)	0.058	0.006
200	16.67	0.10	0.065	(0.239)	0.058	0.006
201	16.75	0.10	0.065	(0.237)	0.058	0.006
202	16.83	0.10	0.065	(0.236)	0.058	0.006
203	16.92	0.10	0.065	(0.235)	0.058	0.006

204	17.00	0.10	0.065	(0.234)	0.058	0.006
205	17.08	0.17	0.108	(0.233)	0.097	0.011
206	17.17	0.17	0.108	(0.231)	0.097	0.011
207	17.25	0.17	0.108	(0.230)	0.097	0.011
208	17.33	0.17	0.108	(0.229)	0.097	0.011
209	17.42	0.17	0.108	(0.228)	0.097	0.011
210	17.50	0.17	0.108	(0.227)	0.097	0.011
211	17.58	0.17	0.108	(0.226)	0.097	0.011
212	17.67	0.17	0.108	(0.225)	0.097	0.011
213	17.75	0.17	0.108	(0.223)	0.097	0.011
214	17.83	0.13	0.086	(0.222)	0.078	0.009
215	17.92	0.13	0.086	(0.221)	0.078	0.009
216	18.00	0.13	0.086	(0.220)	0.078	0.009
217	18.08	0.13	0.086	(0.219)	0.078	0.009
218	18.17	0.13	0.086	(0.218)	0.078	0.009
219	18.25	0.13	0.086	(0.217)	0.078	0.009
220	18.33	0.13	0.086	(0.216)	0.078	0.009
221	18.42	0.13	0.086	(0.215)	0.078	0.009
222	18.50	0.13	0.086	(0.214)	0.078	0.009
223	18.58	0.10	0.065	(0.213)	0.058	0.006
224	18.67	0.10	0.065	(0.212)	0.058	0.006
225	18.75	0.10	0.065	(0.211)	0.058	0.006
226	18.83	0.07	0.043	(0.210)	0.039	0.004
227	18.92	0.07	0.043	(0.209)	0.039	0.004
228	19.00	0.07	0.043	(0.208)	0.039	0.004
229	19.08	0.10	0.065	(0.207)	0.058	0.006
230	19.17	0.10	0.065	(0.206)	0.058	0.006
231	19.25	0.10	0.065	(0.205)	0.058	0.006
232	19.33	0.13	0.086	(0.204)	0.078	0.009
233	19.42	0.13	0.086	(0.203)	0.078	0.009
234	19.50	0.13	0.086	(0.202)	0.078	0.009
235	19.58	0.10	0.065	(0.201)	0.058	0.006
236	19.67	0.10	0.065	(0.200)	0.058	0.006
237	19.75	0.10	0.065	(0.199)	0.058	0.006
238	19.83	0.07	0.043	(0.198)	0.039	0.004
239	19.92	0.07	0.043	(0.197)	0.039	0.004
240	20.00	0.07	0.043	(0.197)	0.039	0.004
241	20.08	0.10	0.065	(0.196)	0.058	0.006

242	20.17	0.10	0.065	(0.195)	0.058	0.006
243	20.25	0.10	0.065	(0.194)	0.058	0.006
244	20.33	0.10	0.065	(0.193)	0.058	0.006
245	20.42	0.10	0.065	(0.192)	0.058	0.006
246	20.50	0.10	0.065	(0.191)	0.058	0.006
247	20.58	0.10	0.065	(0.191)	0.058	0.006
248	20.67	0.10	0.065	(0.190)	0.058	0.006
249	20.75	0.10	0.065	(0.189)	0.058	0.006
250	20.83	0.07	0.043	(0.188)	0.039	0.004
251	20.92	0.07	0.043	(0.188)	0.039	0.004
252	21.00	0.07	0.043	(0.187)	0.039	0.004
253	21.08	0.10	0.065	(0.186)	0.058	0.006
254	21.17	0.10	0.065	(0.185)	0.058	0.006
255	21.25	0.10	0.065	(0.185)	0.058	0.006
256	21.33	0.07	0.043	(0.184)	0.039	0.004
257	21.42	0.07	0.043	(0.183)	0.039	0.004
258	21.50	0.07	0.043	(0.183)	0.039	0.004
259	21.58	0.10	0.065	(0.182)	0.058	0.006
260	21.67	0.10	0.065	(0.181)	0.058	0.006
261	21.75	0.10	0.065	(0.181)	0.058	0.006
262	21.83	0.07	0.043	(0.180)	0.039	0.004
263	21.92	0.07	0.043	(0.179)	0.039	0.004
264	22.00	0.07	0.043	(0.179)	0.039	0.004
265	22.08	0.10	0.065	(0.178)	0.058	0.006
266	22.17	0.10	0.065	(0.178)	0.058	0.006
267	22.25	0.10	0.065	(0.177)	0.058	0.006
268	22.33	0.07	0.043	(0.176)	0.039	0.004
269	22.42	0.07	0.043	(0.176)	0.039	0.004
270	22.50	0.07	0.043	(0.175)	0.039	0.004
271	22.58	0.07	0.043	(0.175)	0.039	0.004
272	22.67	0.07	0.043	(0.174)	0.039	0.004
273	22.75	0.07	0.043	(0.174)	0.039	0.004
274	22.83	0.07	0.043	(0.173)	0.039	0.004
275	22.92	0.07	0.043	(0.173)	0.039	0.004
276	23.00	0.07	0.043	(0.173)	0.039	0.004
277	23.08	0.07	0.043	(0.172)	0.039	0.004
278	23.17	0.07	0.043	(0.172)	0.039	0.004
279	23.25	0.07	0.043	(0.171)	0.039	0.004

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280  23.33     0.07      0.043       (  0.171)       0.039        0.004
281  23.42     0.07      0.043       (  0.171)       0.039        0.004
282  23.50     0.07      0.043       (  0.170)       0.039        0.004
283  23.58     0.07      0.043       (  0.170)       0.039        0.004
284  23.67     0.07      0.043       (  0.170)       0.039        0.004
285  23.75     0.07      0.043       (  0.170)       0.039        0.004
286  23.83     0.07      0.043       (  0.170)       0.039        0.004
287  23.92     0.07      0.043       (  0.169)       0.039        0.004
288  24.00     0.07      0.043       (  0.169)       0.039        0.004
           (Loss Rate Not Used)
    Sum =     100.0                                  Sum =    17.9
     Flood volume = Effective rainfall      1.49(In)
      times area       1.0(Ac.)/[(In)/(Ft.)] =       0.1(Ac.Ft)
     Total soil loss =      3.90(In)
     Total soil loss =     0.322(Ac.Ft)
     Total rainfall =      5.39(In)
     Flood volume =        5361.6 Cubic Feet
     Total soil loss =       14008.4 Cubic Feet
     ------------------------------------------------------------------------
      Peak flow rate of this hydrograph =      0.442(CFS)
     ------------------------------------------------------------------------
     ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                         24 - H O U R    S T O R M
                    R u n o f f      H y d r o g r a p h
     ------------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

     ------------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
 ------------------------------------------------------------------------
   0+ 5       0.0000      0.00  Q         |         |         |         |
   0+10       0.0001      0.00  Q         |         |         |         |
   0+15       0.0001      0.00  Q         |         |         |         |
   0+20       0.0001      0.01  Q         |         |         |         |
   0+25       0.0002      0.01  Q         |         |         |         |
   0+30       0.0002      0.01  Q         |         |         |         |
   0+35       0.0003      0.01  Q         |         |         |         |
   0+40       0.0003      0.01  Q         |         |         |         |
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0+45	0.0004	0.01	Q				
0+50	0.0004	0.01	Q				
0+55	0.0005	0.01	Q				
1+ 0	0.0005	0.01	Q				
1+ 5	0.0006	0.01	Q				
1+10	0.0006	0.01	Q				
1+15	0.0007	0.01	Q				
1+20	0.0007	0.01	Q				
1+25	0.0008	0.01	Q				
1+30	0.0008	0.01	Q				
1+35	0.0008	0.01	Q				
1+40	0.0009	0.01	Q				
1+45	0.0009	0.01	Q				
1+50	0.0010	0.01	Q				
1+55	0.0011	0.01	Q				
2+ 0	0.0011	0.01	Q				
2+ 5	0.0012	0.01	Q				
2+10	0.0012	0.01	Q				
2+15	0.0013	0.01	Q				
2+20	0.0013	0.01	Q				
2+25	0.0014	0.01	Q				
2+30	0.0015	0.01	Q				
2+35	0.0015	0.01	Q				
2+40	0.0016	0.01	Q				
2+45	0.0017	0.01	Q				
2+50	0.0018	0.01	Q				
2+55	0.0018	0.01	Q				
3+ 0	0.0019	0.01	Q				
3+ 5	0.0020	0.01	Q				
3+10	0.0021	0.01	Q				
3+15	0.0021	0.01	Q				
3+20	0.0022	0.01	Q				
3+25	0.0023	0.01	Q				
3+30	0.0024	0.01	Q				
3+35	0.0024	0.01	Q				
3+40	0.0025	0.01	Q				
3+45	0.0026	0.01	Q				
3+50	0.0027	0.01	Q				

3+55	0.0028	0.01	Q				
4+ 0	0.0028	0.01	Q				
4+ 5	0.0029	0.01	Q				
4+10	0.0030	0.01	Q				
4+15	0.0031	0.01	QV				
4+20	0.0032	0.02	QV				
4+25	0.0033	0.02	QV				
4+30	0.0034	0.02	QV				
4+35	0.0035	0.02	QV				
4+40	0.0036	0.02	QV				
4+45	0.0037	0.02	QV				
4+50	0.0039	0.02	QV				
4+55	0.0040	0.02	QV				
5+ 0	0.0041	0.02	QV				
5+ 5	0.0042	0.01	QV				
5+10	0.0043	0.01	QV				
5+15	0.0044	0.01	QV				
5+20	0.0045	0.02	QV				
5+25	0.0046	0.02	QV				
5+30	0.0047	0.02	QV				
5+35	0.0048	0.02	QV				
5+40	0.0049	0.02	QV				
5+45	0.0050	0.02	QV				
5+50	0.0051	0.02	QV				
5+55	0.0053	0.02	QV				
6+ 0	0.0054	0.02	QV				
6+ 5	0.0055	0.02	QV				
6+10	0.0056	0.02	QV				
6+15	0.0058	0.02	QV				
6+20	0.0059	0.02	QV				
6+25	0.0060	0.02	QV				
6+30	0.0062	0.02	Q V				
6+35	0.0063	0.02	Q V				
6+40	0.0065	0.02	Q V				
6+45	0.0066	0.02	Q V				
6+50	0.0068	0.02	Q V				
6+55	0.0069	0.02	Q V				
7+ 0	0.0071	0.02	Q V				

7+ 5	0.0072	0.02	Q V	|	|	|	|
7+10	0.0074	0.02	Q V	|	|	|	|
7+15	0.0075	0.02	Q V	|	|	|	|
7+20	0.0077	0.02	Q V	|	|	|	|
7+25	0.0078	0.02	Q V	|	|	|	|
7+30	0.0080	0.02	Q V	|	|	|	|
7+35	0.0082	0.03	Q V	|	|	|	|
7+40	0.0084	0.03	Q V	|	|	|	|
7+45	0.0085	0.03	Q V	|	|	|	|
7+50	0.0087	0.03	Q V	|	|	|	|
7+55	0.0089	0.03	Q V	|	|	|	|
8+ 0	0.0091	0.03	Q V	|	|	|	|
8+ 5	0.0093	0.03	Q V	|	|	|	|
8+10	0.0096	0.03	Q V	|	|	|	|
8+15	0.0098	0.03	Q V	|	|	|	|
8+20	0.0100	0.03	Q V	|	|	|	|
8+25	0.0102	0.03	Q V	|	|	|	|
8+30	0.0104	0.03	Q V	|	|	|	|
8+35	0.0107	0.03	Q V	|	|	|	|
8+40	0.0109	0.03	Q V	|	|	|	|
8+45	0.0112	0.03	Q V	|	|	|	|
8+50	0.0114	0.04	Q V	|	|	|	|
8+55	0.0117	0.04	Q V	|	|	|	|
9+ 0	0.0119	0.04	Q V	|	|	|	|
9+ 5	0.0122	0.04	Q V	|	|	|	|
9+10	0.0125	0.04	Q V	|	|	|	|
9+15	0.0128	0.04	Q V	|	|	|	|
9+20	0.0132	0.06	Q V	|	|	|	|
9+25	0.0136	0.06	Q V	|	|	|	|
9+30	0.0140	0.06	Q V	|	|	|	|
9+35	0.0146	0.09	Q V	|	|	|	|
9+40	0.0152	0.09	Q V	|	|	|	|
9+45	0.0159	0.09	Q V	|	|	|	|
9+50	0.0166	0.11	Q V	|	|	|	|
9+55	0.0174	0.11	Q V	|	|	|	|
10+ 0	0.0182	0.12	Q V	|	|	|	|
10+ 5	0.0185	0.03	Q V	|	|	|	|
10+10	0.0187	0.03	Q V	|	|	|	|

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10+15       0.0189      0.03  Q     V   |          |          |          |
10+20       0.0191      0.03  Q     V   |          |          |          |
10+25       0.0193      0.03  Q     V   |          |          |          |
10+30       0.0196      0.03  Q     V   |          |          |          |
10+35       0.0202      0.09  Q     V   |          |          |          |
10+40       0.0208      0.09  Q     V   |          |          |          |
10+45       0.0214      0.09  Q     V   |          |          |          |
10+50       0.0220      0.09  Q      V  |          |          |          |
10+55       0.0226      0.09  Q      V  |          |          |          |
11+ 0       0.0233      0.09  Q      V  |          |          |          |
11+ 5       0.0238      0.07  Q      V  |          |          |          |
11+10       0.0243      0.08  Q      V  |          |          |          |
11+15       0.0248      0.08  Q       V |          |          |          |
11+20       0.0254      0.08  Q       V |          |          |          |
11+25       0.0259      0.08  Q       V |          |          |          |
11+30       0.0265      0.08  Q       V |          |          |          |
11+35       0.0268      0.04  Q       V |          |          |          |
11+40       0.0271      0.04  Q       V |          |          |          |
11+45       0.0274      0.04  Q       V |          |          |          |
11+50       0.0278      0.07  Q        V|          |          |          |
11+55       0.0283      0.07  Q        V|          |          |          |
12+ 0       0.0288      0.07  Q        V|          |          |          |
12+ 5       0.0303      0.22  Q        V|          |          |          |
12+10       0.0319      0.22  Q         V          |          |          |
12+15       0.0334      0.23  Q         V          |          |          |
12+20       0.0352      0.25  Q          |V         |          |          |
12+25       0.0369      0.25  |Q         |V         |          |          |
12+30       0.0386      0.25  |Q         | V        |          |          |
12+35       0.0407      0.30  |Q         |  V       |          |          |
12+40       0.0427      0.30  |Q         |  V       |          |          |
12+45       0.0448      0.30  |Q         |   V      |          |          |
12+50       0.0470      0.32  |Q         |    V     |          |          |
12+55       0.0492      0.32  |Q         |    V     |          |          |
13+ 0       0.0515      0.33  |Q         |     V    |          |          |
13+ 5       0.0545      0.43  |Q         |      V   |          |          |
13+10       0.0575      0.44  |Q         |       V  |          |          |
13+15       0.0605      0.44  |Q         |        V |          |          |
13+20       0.0635      0.44  |Q         |         V|          |          |
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13+25       0.0666      0.44  |Q        |          |V         |          |
13+30       0.0696      0.44  |Q        |          | V        |          |
13+35       0.0710      0.21  Q         |          |  V       |          |
13+40       0.0725      0.21  Q         |          |  V       |          |
13+45       0.0739      0.21  Q         |          |   V      |          |
13+50       0.0754      0.21  Q         |          |   V      |          |
13+55       0.0768      0.21  Q         |          |   V      |          |
14+ 0       0.0783      0.21  Q         |          |    V     |          |
14+ 5       0.0804      0.30  |Q        |          |     V    |          |
14+10       0.0825      0.30  |Q        |          |     V    |          |
14+15       0.0846      0.30  |Q        |          |      V   |          |
14+20       0.0865      0.28  |Q        |          |       V  |          |
14+25       0.0885      0.29  |Q        |          |       V  |          |
14+30       0.0905      0.29  |Q        |          |        V |          |
14+35       0.0925      0.29  |Q        |          |         V          |
14+40       0.0945      0.29  |Q        |          |         V          |
14+45       0.0965      0.29  |Q        |          |          |V        |
14+50       0.0983      0.27  |Q        |          |          |V        |
14+55       0.1002      0.27  |Q        |          |          | V       |
15+ 0       0.1021      0.27  |Q        |          |          |  V      |
15+ 5       0.1039      0.25  |Q        |          |          |  V      |
15+10       0.1056      0.26  |Q        |          |          |   V     |
15+15       0.1074      0.26  |Q        |          |          |   V     |
15+20       0.1090      0.24  Q         |          |          |    V    |
15+25       0.1107      0.24  Q         |          |          |    V    |
15+30       0.1123      0.24  Q         |          |          |     V   |
15+35       0.1134      0.15  Q         |          |          |     V   |
15+40       0.1144      0.16  Q         |          |          |      V  |
15+45       0.1155      0.16  Q         |          |          |      V  |
15+50       0.1166      0.16  Q         |          |          |      V  |
15+55       0.1177      0.16  Q         |          |          |       V |
16+ 0       0.1188      0.16  Q         |          |          |       V |
16+ 5       0.1189      0.01  Q         |          |          |       V |
16+10       0.1189      0.01  Q         |          |          |       V |
16+15       0.1190      0.01  Q         |          |          |       V |
16+20       0.1191      0.01  Q         |          |          |       V |
16+25       0.1191      0.01  Q         |          |          |       V |
16+30       0.1192      0.01  Q         |          |          |       V |
```

16+35	0.1192	0.01	Q	|	|	|	V |
16+40	0.1193	0.01	Q	|	|	|	V |
16+45	0.1193	0.01	Q	|	|	|	V |
16+50	0.1194	0.01	Q	|	|	|	V |
16+55	0.1194	0.01	Q	|	|	|	V |
17+ 0	0.1194	0.01	Q	|	|	|	V |
17+ 5	0.1195	0.01	Q	|	|	|	V |
17+10	0.1196	0.01	Q	|	|	|	V |
17+15	0.1197	0.01	Q	|	|	|	V |
17+20	0.1197	0.01	Q	|	|	|	V |
17+25	0.1198	0.01	Q	|	|	|	V |
17+30	0.1199	0.01	Q	|	|	|	V |
17+35	0.1200	0.01	Q	|	|	|	V |
17+40	0.1200	0.01	Q	|	|	|	V|
17+45	0.1201	0.01	Q	|	|	|	V|
17+50	0.1202	0.01	Q	|	|	|	V|
17+55	0.1202	0.01	Q	|	|	|	V|
18+ 0	0.1203	0.01	Q	|	|	|	V|
18+ 5	0.1203	0.01	Q	|	|	|	V|
18+10	0.1204	0.01	Q	|	|	|	V|
18+15	0.1205	0.01	Q	|	|	|	V|
18+20	0.1205	0.01	Q	|	|	|	V|
18+25	0.1206	0.01	Q	|	|	|	V|
18+30	0.1206	0.01	Q	|	|	|	V|
18+35	0.1207	0.01	Q	|	|	|	V|
18+40	0.1207	0.01	Q	|	|	|	V|
18+45	0.1208	0.01	Q	|	|	|	V|
18+50	0.1208	0.00	Q	|	|	|	V|
18+55	0.1208	0.00	Q	|	|	|	V|
19+ 0	0.1209	0.00	Q	|	|	|	V|
19+ 5	0.1209	0.01	Q	|	|	|	V|
19+10	0.1210	0.01	Q	|	|	|	V|
19+15	0.1210	0.01	Q	|	|	|	V|
19+20	0.1211	0.01	Q	|	|	|	V|
19+25	0.1211	0.01	Q	|	|	|	V|
19+30	0.1212	0.01	Q	|	|	|	V|
19+35	0.1212	0.01	Q	|	|	|	V|
19+40	0.1213	0.01	Q	|	|	|	V|

19+45	0.1213	0.01	Q	|	|	|	V|
19+50	0.1213	0.00	Q	|	|	|	V|
19+55	0.1214	0.00	Q	|	|	|	V|
20+ 0	0.1214	0.00	Q	|	|	|	V|
20+ 5	0.1214	0.01	Q	|	|	|	V|
20+10	0.1215	0.01	Q	|	|	|	V|
20+15	0.1215	0.01	Q	|	|	|	V|
20+20	0.1216	0.01	Q	|	|	|	V|
20+25	0.1216	0.01	Q	|	|	|	V|
20+30	0.1217	0.01	Q	|	|	|	V|
20+35	0.1217	0.01	Q	|	|	|	V|
20+40	0.1218	0.01	Q	|	|	|	V|
20+45	0.1218	0.01	Q	|	|	|	V|
20+50	0.1218	0.00	Q	|	|	|	V|
20+55	0.1219	0.00	Q	|	|	|	V|
21+ 0	0.1219	0.00	Q	|	|	|	V|
21+ 5	0.1219	0.01	Q	|	|	|	V|
21+10	0.1220	0.01	Q	|	|	|	V|
21+15	0.1220	0.01	Q	|	|	|	V|
21+20	0.1220	0.00	Q	|	|	|	V|
21+25	0.1221	0.00	Q	|	|	|	V|
21+30	0.1221	0.00	Q	|	|	|	V|
21+35	0.1222	0.01	Q	|	|	|	V|
21+40	0.1222	0.01	Q	|	|	|	V|
21+45	0.1222	0.01	Q	|	|	|	V|
21+50	0.1223	0.00	Q	|	|	|	V|
21+55	0.1223	0.00	Q	|	|	|	V|
22+ 0	0.1223	0.00	Q	|	|	|	V|
22+ 5	0.1224	0.01	Q	|	|	|	V|
22+10	0.1224	0.01	Q	|	|	|	V|
22+15	0.1225	0.01	Q	|	|	|	V|
22+20	0.1225	0.00	Q	|	|	|	V|
22+25	0.1225	0.00	Q	|	|	|	V|
22+30	0.1226	0.00	Q	|	|	|	V|
22+35	0.1226	0.00	Q	|	|	|	V|
22+40	0.1226	0.00	Q	|	|	|	V|
22+45	0.1226	0.00	Q	|	|	|	V|
22+50	0.1227	0.00	Q	|	|	|	V|

```
   22+55       0.1227      0.00  Q          |          |          |         V|
   23+ 0       0.1227      0.00  Q          |          |          |         V|
   23+ 5       0.1228      0.00  Q          |          |          |         V|
   23+10       0.1228      0.00  Q          |          |          |         V|
   23+15       0.1228      0.00  Q          |          |          |         V|
   23+20       0.1228      0.00  Q          |          |          |         V|
   23+25       0.1229      0.00  Q          |          |          |         V|
   23+30       0.1229      0.00  Q          |          |          |         V|
   23+35       0.1229      0.00  Q          |          |          |         V|
   23+40       0.1230      0.00  Q          |          |          |         V|
   23+45       0.1230      0.00  Q          |          |          |         V|
   23+50       0.1230      0.00  Q          |          |          |         V|
   23+55       0.1231      0.00  Q          |          |          |         V|
   24+ 0       0.1231      0.00  Q          |          |          |          V
-------------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 14- 100 YR, 1-hr

Drainage Area = 1.06(Ac.) = 0.002 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.06(Ac.) = 0.002 Sq. Mi.
Length along longest watercourse = 100.00(Ft.)
Length along longest watercourse measured to centroid = 50.00(Ft.)
Length along longest watercourse = 0.019 Mi.
Length along longest watercourse measured to centroid = 0.009 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 52.8000 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.006 Hr.
Lag time =     0.38 Min.
25% of lag time =     0.10 Min.
40% of lag time =     0.15 Min.
Unit time =     5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.06             0.51                 0.54

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.06             1.61                 1.71

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.514(In)
Area Averaged 100-Year Rainfall =    1.610(In)

Point rain (area averaged) =    1.610(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    1.610(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     1.060           35.70          0.200
 Total Area Entered =      1.06(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
35.7  35.7      0.709     0.200        0.581        1.000      0.581
```

Sum (F) = 0.581

Area averaged mean soil loss (F) (In/Hr) = 0.581
Minimum soil loss rate ((In/Hr)) = 0.291
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

Slope of intensity-duration curve for a 1 hour storm =0.5500

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	100.000	1.068
	Sum =	100.000 Sum=	1.068

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	3.30	0.638	(0.581)	0.574	0.064
2	0.17	4.20	0.811	0.581	(0.730)	0.230
3	0.25	4.40	0.850	0.581	(0.765)	0.269
4	0.33	4.80	0.927	0.581	(0.835)	0.346
5	0.42	5.20	1.005	0.58		

U n i t H y d r o g r a p h A n a l y s i s

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Study date 01/03/23 File: VOLT143100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 14- 100 YR, 3-hr

Drainage Area = 1.06(Ac.) = 0.002 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.06(Ac.) = 0.002 Sq. Mi.
Length along longest watercourse = 100.00(Ft.)
Length along longest watercourse measured to centroid = 50.00(Ft.)
Length along longest watercourse = 0.019 Mi.
Length along longest watercourse measured to centroid = 0.009 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 52.8000 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.006 Hr.
Lag time =     0.38 Min.
25% of lag time =     0.10 Min.
40% of lag time =     0.15 Min.
Unit time =     5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.06             0.86                 0.92

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.06             2.25                 2.39

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.864(In)
Area Averaged 100-Year Rainfall =    2.250(In)

Point rain (area averaged) =    2.250(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.250(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     1.060           35.70          0.200
 Total Area Entered =      1.06(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
35.7  35.7      0.709     0.200        0.581       1.000      0.581
```

Sum (F) = 0.581

Area averaged mean soil loss (F) (In/Hr) = 0.581
Minimum soil loss rate ((In/Hr)) = 0.291
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	1304.397	100.000	1.068
		Sum = 100.000	Sum= 1.068

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max		Low	Effective (In/Hr)
1	0.08	1.30	0.351	(0.581)		0.316	0.035
2	0.17	1.30	0.351	(0.581)		0.316	0.035
3	0.25	1.10	0.297	(0.581)		0.267	0.030
4	0.33	1.50	0.405	(0.581)		0.364	0.040
5	0.42	1.50	0.405	(0.581)		0.364	0.040
6	0.50	1.80	0.486	(0.581)		0.437	0.049
7	0.58	1.50	0.405	(0.581)		0.364	0.040
8	0.67	1.80	0.486	(0.581)		0.437	0.049
9	0.75	1.80	0.486	(0.581)		0.437	0.049
10	0.83	1.50	0.405	(0.581)		0.364	0.040
11	0.92	1.60	0.432	(0.581)		0.389	0.043
12	1.00	1.80	0.486	(0.581)		0.437	0.049
13	1.08	2.20	0.594	(0.581)		0.535	0.059

```
14   1.17     2.20      0.594       (  0.581)       0.535        0.059
15   1.25     2.20      0.594       (  0.581)       0.535        0.059
16   1.33     2.00      0.540       (  0.581)       0.486        0.054
17   1.42     2.60      0.702          0.581    (  0.632)        0.121
18   1.50     2.70      0.729          0.581    (  0.656)        0.148
19   1.58     2.40      0.648          0.581    (  0.583)        0.067
20   1.67     2.70      0.729          0.581    (  0.656)        0.148
21   1.75     3.30      0.891          0.581    (  0.802)        0.310
22   1.83     3.10      0.837          0.581    (  0.753)        0.256
23   1.92     2.90      0.783          0.581    (  0.705)        0.202
24   2.00     3.00      0.810          0.581    (  0.729)        0.229
25   2.08     3.10      0.837          0.581    (  0.753)        0.256
26   2.17     4.20      1.134          0.581    (  1.021)        0.553
27   2.25     5.00      1.350          0.581    (  1.215)        0.769
28   2.33     3.50      0.945          0.581    (  0.850)        0.364
29   2.42     6.80      1.836          0.581    (  1.652)        1.255
30   2.50     7.30      1.971          0.581    (  1.774)        1.390
31   2.58     8.20      2.214          0.581    (  1.993)        1.633
32   2.67     5.90      1.593          0.581    (  1.434)        1.012
33   2.75     2.00      0.540       (  0.581)       0.486        0.054
34   2.83     1.80      0.486       (  0.581)       0.437        0.049
35   2.92     1.80      0.486       (  0.581)       0.437        0.049
36   3.00     0.60      0.162       (  0.581)       0.146        0.016
          (Loss Rate Not Used)
Sum =     100.0                                     Sum =      9.6
 Flood volume = Effective rainfall      0.80(In)
  times area       1.1(Ac.)/[(In)/(Ft.)] =       0.1(Ac.Ft)
 Total soil loss =      1.45(In)
 Total soil loss =     0.128(Ac.Ft)
 Total rainfall =      2.25(In)
 Flood volume =        3081.4 Cubic Feet
 Total soil loss =        5576.1 Cubic Feet
 ---------------------------------------------------------------------
  Peak flow rate of this hydrograph =      1.745(CFS)
 ---------------------------------------------------------------------
 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                    3 - H O U R    S T O R M
                R u n o f f      H y d r o g r a p h
```

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0003	0.04	Q				
0+10	0.0005	0.04	Q				
0+15	0.0007	0.03	Q				
0+20	0.0010	0.04	Q				
0+25	0.0013	0.04	Q				
0+30	0.0017	0.05	Q				
0+35	0.0020	0.04	QV				
0+40	0.0023	0.05	QV				
0+45	0.0027	0.05	QV				
0+50	0.0030	0.04	QV				
0+55	0.0033	0.05	QV				

U n i t H y d r o g r a p h A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 14- 100 YR, 6-hr

Drainage Area = 1.06(Ac.) = 0.002 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.06(Ac.) = 0.002 Sq. Mi.
Length along longest watercourse = 100.00(Ft.)
Length along longest watercourse measured to centroid = 50.00(Ft.)
Length along longest watercourse = 0.019 Mi.
Length along longest watercourse measured to centroid = 0.009 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 52.8000 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.006 Hr.
Lag time =     0.38 Min.
25% of lag time =     0.10 Min.
40% of lag time =     0.15 Min.
Unit time =     5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.06             1.20                 1.27

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.06             2.99                 3.17

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.200(In)
Area Averaged 100-Year Rainfall =    2.990(In)

Point rain (area averaged) =    2.990(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.990(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     1.060           35.70          0.200
 Total Area Entered =      1.06(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
35.7  35.7      0.709     0.200        0.581        1.000      0.581
```

Sum (F) = 0.581

Area averaged mean soil loss (F) (In/Hr) = 0.581
Minimum soil loss rate ((In/Hr)) = 0.291
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	1304.397	100.000	1.068
		Sum = 100.000	Sum= 1.068

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max		Low	Effective (In/Hr)
1	0.08	0.50	0.179	(0.581)		0.161	0.018
2	0.17	0.60	0.215	(0.581)		0.194	0.022
3	0.25	0.60	0.215	(0.581)		0.194	0.022
4	0.33	0.60	0.215	(0.581)		0.194	0.022
5	0.42	0.60	0.215	(0.581)		0.194	0.022
6	0.50	0.70	0.251	(0.581)		0.226	0.025
7	0.58	0.70	0.251	(0.581)		0.226	0.025
8	0.67	0.70	0.251	(0.581)		0.226	0.025
9	0.75	0.70	0.251	(0.581)		0.226	0.025
10	0.83	0.70	0.251	(0.581)		0.226	0.025
11	0.92	0.70	0.251	(0.581)		0.226	0.025
12	1.00	0.80	0.287	(0.581)		0.258	0.029
13	1.08	0.80	0.287	(0.581)		0.258	0.029

14	1.17	0.80	0.287	(0.581)	0.258	0.029
15	1.25	0.80	0.287	(0.581)	0.258	0.029
16	1.33	0.80	0.287	(0.581)	0.258	0.029
17	1.42	0.80	0.287	(0.581)	0.258	0.029
18	1.50	0.80	0.287	(0.581)	0.258	0.029
19	1.58	0.80	0.287	(0.581)	0.258	0.029
20	1.67	0.80	0.287	(0.581)	0.258	0.029
21	1.75	0.80	0.287	(0.581)	0.258	0.029
22	1.83	0.80	0.287	(0.581)	0.258	0.029
23	1.92	0.80	0.287	(0.581)	0.258	0.029
24	2.00	0.90	0.323	(0.581)	0.291	0.032
25	2.08	0.80	0.287	(0.581)	0.258	0.029
26	2.17	0.90	0.323	(0.581)	0.291	0.032
27	2.25	0.90	0.323	(0.581)	0.291	0.032
28	2.33	0.90	0.323	(0.581)	0.291	0.032
29	2.42	0.90	0.323	(0.581)	0.291	0.032
30	2.50	0.90	0.323	(0.581)	0.291	0.032
31	2.58	0.90	0.323	(0.581)	0.291	0.032
32	2.67	0.90	0.323	(0.581)	0.291	0.032
33	2.75	1.00	0.359	(0.581)	0.323	0.036
34	2.83	1.00	0.359	(0.581)	0.323	0.036
35	2.92	1.00	0.359	(0.581)	0.323	0.036
36	3.00	1.00	0.359	(0.581)	0.323	0.036
37	3.08	1.00	0.359	(0.581)	0.323	0.036
38	3.17	1.10	0.395	(0.581)	0.355	0.039
39	3.25	1.10	0.395	(0.581)	0.355	0.039
40	3.33	1.10	0.395	(0.581)	0.355	0.039
41	3.42	1.20	0.431	(0.581)	0.388	0.043
42	3.50	1.30	0.466	(0.581)	0.420	0.047
43	3.58	1.40	0.502	(0.581)	0.452	0.050
44	3.67	1.40	0.502	(0.581)	0.452	0.050
45	3.75	1.50	0.538	(0.581)	0.484	0.054
46	3.83	1.50	0.538	(0.581)	0.484	0.054
47	3.92	1.60	0.574	(0.581)	0.517	0.057
48	4.00	1.60	0.574	(0.581)	0.517	0.057
49	4.08	1.70	0.610	(0.581)	0.549	0.061
50	4.17	1.80	0.646	0.581	(0.581)	0.065
51	4.25	1.90	0.682	0.581	(0.614)	0.101

```
52   4.33     2.00      0.718          0.581    (  0.646)        0.136
53   4.42     2.10      0.753          0.581    (  0.678)        0.172
54   4.50     2.10      0.753          0.581    (  0.678)        0.172
55   4.58     2.20      0.789          0.581    (  0.710)        0.208
56   4.67     2.30      0.825          0.581    (  0.743)        0.244
57   4.75     2.40      0.861          0.581    (  0.775)        0.280
58   4.83     2.40      0.861          0.581    (  0.775)        0.280
59   4.92     2.50      0.897          0.581    (  0.807)        0.316
60   5.00     2.60      0.933          0.581    (  0.840)        0.352
61   5.08     3.10      1.112          0.581    (  1.001)        0.531
62   5.17     3.60      1.292          0.581    (  1.163)        0.711
63   5.25     3.90      1.399          0.581    (  1.259)        0.818
64   5.33     4.20      1.507          0.581    (  1.356)        0.926
65   5.42     4.70      1.686          0.581    (  1.518)        1.105
66   5.50     5.60      2.009          0.581    (  1.808)        1.428
67   5.58     1.90      0.682          0.581    (  0.614)        0.101
68   5.67     0.90      0.323       (  0.581)       0.291        0.032
69   5.75     0.60      0.215       (  0.581)       0.194        0.022
70   5.83     0.50      0.179       (  0.581)       0.161        0.018
71   5.92     0.30      0.108       (  0.581)       0.097        0.011
72   6.00     0.20      0.072       (  0.581)       0.065        0.007
          (Loss Rate Not Used)
   Sum =     100.0                                   Sum =      9.7
    Flood volume = Effective rainfall      0.81(In)
     times area       1.1(Ac.)/[(In)/(Ft.)] =       0.1(Ac.Ft)
    Total soil loss =      2.18(In)
    Total soil loss =     0.193(Ac.Ft)
    Total rainfall =      2.99(In)
    Flood volume =        3108.2 Cubic Feet
    Total soil loss =        8396.7 Cubic Feet
    ---------------------------------------------------------------------
     Peak flow rate of this hydrograph =      1.526(CFS)
    ---------------------------------------------------------------------
    +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        6 - H O U R    S T O R M
                    R u n o f f      H y d r o g r a p h
    ---------------------------------------------------------------------
                Hydrograph in   5   Minute intervals ((CFS))
```

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0001	0.02	Q				
0+10	0.0003	0.02	Q				
0+15	0.0004	0.02	Q				
0+20	0.0006	0.02	Q				
0+25	0.0008	0.02	Q				
0+30	0.0010	0.03	Q				
0+35	0.0011	0.03	Q				
0+40	0.0013	0.03	Q				
0+45	0.0015	0.03	Q				
0+50	0.0017	0.03	Q				
0+55	0.0019	0.03	QV				
1+ 0	0.0021	0.03	QV				
1+ 5	0.0023	0.03	QV				
1+10	0.0025	0.03	QV				
1+15	0.0027	0.03	QV				
1+20	0.0029	0.03	QV				
1+25	0.0031	0.03	QV				
1+30	0.0034	0.03	QV				
1+35	0.0036	0.03	QV				
1+40	0.0038	0.03	Q V				
1+45	0.0040	0.03	Q V				
1+50	0.0042	0.03	Q V				
1+55	0.0044	0.03	Q V				
2+ 0	0.0046	0.03	Q V				
2+ 5	0.0049	0.03	Q V				
2+10	0.0051	0.03	Q V				
2+15	0.0053	0.03	Q V				
2+20	0.0056	0.03	Q V				
2+25	0.0058	0.03	Q V				
2+30	0.0060	0.03	Q V				
2+35	0.0063						

U n i t H y d r o g r a p h A n a l y s i s

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Study date 01/03/23 File: VOLT1424100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 14- 100 YR, 24-hr

Drainage Area = 1.06(Ac.) = 0.002 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.06(Ac.) = 0.002 Sq. Mi.
Length along longest watercourse = 100.00(Ft.)
Length along longest watercourse measured to centroid = 50.00(Ft.)
Length along longest watercourse = 0.019 Mi.
Length along longest watercourse measured to centroid = 0.009 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 52.8000 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.006 Hr.
Lag time =     0.38 Min.
25% of lag time =     0.10 Min.
40% of lag time =     0.15 Min.
Unit time =     5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.06             2.06                 2.18

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.06             5.39                 5.71

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    2.060(In)
Area Averaged 100-Year Rainfall =    5.390(In)

Point rain (area averaged) =    5.390(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    5.390(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     1.060           35.70          0.200
 Total Area Entered =      1.06(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
35.7  35.7      0.709     0.200        0.581        1.000      0.581
```

Sum (F) = 0.581

Area averaged mean soil loss (F) (In/Hr) = 0.581
Minimum soil loss rate ((In/Hr)) = 0.291
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	1304.397	100.000	1.068
		Sum = 100.000	Sum= 1.068

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.043	(1.030)	0.039	0.004
2	0.17	0.07	0.043	(1.026)	0.039	0.004
3	0.25	0.07	0.043	(1.022)	0.039	0.004
4	0.33	0.10	0.065	(1.018)	0.058	0.006
5	0.42	0.10	0.065	(1.014)	0.058	0.006
6	0.50	0.10	0.065	(1.010)	0.058	0.006
7	0.58	0.10	0.065	(1.006)	0.058	0.006
8	0.67	0.10	0.065	(1.002)	0.058	0.006
9	0.75	0.10	0.065	(0.999)	0.058	0.006
10	0.83	0.13	0.086	(0.995)	0.078	0.009
11	0.92	0.13	0.086	(0.991)	0.078	0.009
12	1.00	0.13	0.086	(0.987)	0.078	0.009
13	1.08	0.10	0.065	(0.983)	0.058	0.006

14	1.17	0.10	0.065	(0.979)	0.058	0.006
15	1.25	0.10	0.065	(0.975)	0.058	0.006
16	1.33	0.10	0.065	(0.971)	0.058	0.006
17	1.42	0.10	0.065	(0.967)	0.058	0.006
18	1.50	0.10	0.065	(0.964)	0.058	0.006
19	1.58	0.10	0.065	(0.960)	0.058	0.006
20	1.67	0.10	0.065	(0.956)	0.058	0.006
21	1.75	0.10	0.065	(0.952)	0.058	0.006
22	1.83	0.13	0.086	(0.948)	0.078	0.009
23	1.92	0.13	0.086	(0.944)	0.078	0.009
24	2.00	0.13	0.086	(0.941)	0.078	0.009
25	2.08	0.13	0.086	(0.937)	0.078	0.009
26	2.17	0.13	0.086	(0.933)	0.078	0.009
27	2.25	0.13	0.086	(0.929)	0.078	0.009
28	2.33	0.13	0.086	(0.925)	0.078	0.009
29	2.42	0.13	0.086	(0.922)	0.078	0.009
30	2.50	0.13	0.086	(0.918)	0.078	0.009
31	2.58	0.17	0.108	(0.914)	0.097	0.011
32	2.67	0.17	0.108	(0.910)	0.097	0.011
33	2.75	0.17	0.108	(0.907)	0.097	0.011
34	2.83	0.17	0.108	(0.903)	0.097	0.011
35	2.92	0.17	0.108	(0.899)	0.097	0.011
36	3.00	0.17	0.108	(0.895)	0.097	0.011
37	3.08	0.17	0.108	(0.892)	0.097	0.011
38	3.17	0.17	0.108	(0.888)	0.097	0.011
39	3.25	0.17	0.108	(0.884)	0.097	0.011
40	3.33	0.17	0.108	(0.881)	0.097	0.011
41	3.42	0.17	0.108	(0.877)	0.097	0.011
42	3.50	0.17	0.108	(0.873)	0.097	0.011
43	3.58	0.17	0.108	(0.870)	0.097	0.011
44	3.67	0.17	0.108	(0.866)	0.097	0.011
45	3.75	0.17	0.108	(0.862)	0.097	0.011
46	3.83	0.20	0.129	(0.859)	0.116	0.013
47	3.92	0.20	0.129	(0.855)	0.116	0.013
48	4.00	0.20	0.129	(0.851)	0.116	0.013
49	4.08	0.20	0.129	(0.848)	0.116	0.013
50	4.17	0.20	0.129	(0.844)	0.116	0.013
51	4.25	0.20	0.129	(0.841)	0.116	0.013

52	4.33	0.23	0.151	(0.837)	0.136	0.015
53	4.42	0.23	0.151	(0.833)	0.136	0.015
54	4.50	0.23	0.151	(0.830)	0.136	0.015
55	4.58	0.23	0.151	(0.826)	0.136	0.015
56	4.67	0.23	0.151	(0.823)	0.136	0.015
57	4.75	0.23	0.151	(0.819)	0.136	0.015
58	4.83	0.27	0.172	(0.816)	0.155	0.017
59	4.92	0.27	0.172	(0.812)	0.155	0.017
60	5.00	0.27	0.172	(0.809)	0.155	0.017
61	5.08	0.20	0.129	(0.805)	0.116	0.013
62	5.17	0.20	0.129	(0.802)	0.116	0.013
63	5.25	0.20	0.129	(0.798)	0.116	0.013
64	5.33	0.23	0.151	(0.795)	0.136	0.015
65	5.42	0.23	0.151	(0.791)	0.136	0.015
66	5.50	0.23	0.151	(0.788)	0.136	0.015
67	5.58	0.27	0.172	(0.784)	0.155	0.017
68	5.67	0.27	0.172	(0.781)	0.155	0.017
69	5.75	0.27	0.172	(0.777)	0.155	0.017
70	5.83	0.27	0.172	(0.774)	0.155	0.017
71	5.92	0.27	0.172	(0.771)	0.155	0.017
72	6.00	0.27	0.172	(0.767)	0.155	0.017
73	6.08	0.30	0.194	(0.764)	0.175	0.019
74	6.17	0.30	0.194	(0.760)	0.175	0.019
75	6.25	0.30	0.194	(0.757)	0.175	0.019
76	6.33	0.30	0.194	(0.754)	0.175	0.019
77	6.42	0.30	0.194	(0.750)	0.175	0.019
78	6.50	0.30	0.194	(0.747)	0.175	0.019
79	6.58	0.33	0.216	(0.743)	0.194	0.022
80	6.67	0.33	0.216	(0.740)	0.194	0.022
81	6.75	0.33	0.216	(0.737)	0.194	0.022
82	6.83	0.33	0.216	(0.733)	0.194	0.022
83	6.92	0.33	0.216	(0.730)	0.194	0.022
84	7.00	0.33	0.216	(0.727)	0.194	0.022
85	7.08	0.33	0.216	(0.723)	0.194	0.022
86	7.17	0.33	0.216	(0.720)	0.194	0.022
87	7.25	0.33	0.216	(0.717)	0.194	0.022
88	7.33	0.37	0.237	(0.714)	0.213	0.024
89	7.42	0.37	0.237	(0.710)	0.213	0.024

90	7.50	0.37	0.237	(0.707)	0.213	0.024
91	7.58	0.40	0.259	(0.704)	0.233	0.026
92	7.67	0.40	0.259	(0.701)	0.233	0.026
93	7.75	0.40	0.259	(0.697)	0.233	0.026
94	7.83	0.43	0.280	(0.694)	0.252	0.028
95	7.92	0.43	0.280	(0.691)	0.252	0.028
96	8.00	0.43	0.280	(0.688)	0.252	0.028
97	8.08	0.50	0.323	(0.685)	0.291	0.032
98	8.17	0.50	0.323	(0.681)	0.291	0.032
99	8.25	0.50	0.323	(0.678)	0.291	0.032
100	8.33	0.50	0.323	(0.675)	0.291	0.032
101	8.42	0.50	0.323	(0.672)	0.291	0.032
102	8.50	0.50	0.323	(0.669)	0.291	0.032
103	8.58	0.53	0.345	(0.666)	0.310	0.034
104	8.67	0.53	0.345	(0.662)	0.310	0.034
105	8.75	0.53	0.345	(0.659)	0.310	0.034
106	8.83	0.57	0.367	(0.656)	0.330	0.037
107	8.92	0.57	0.367	(0.653)	0.330	0.037
108	9.00	0.57	0.367	(0.650)	0.330	0.037
109	9.08	0.63	0.410	(0.647)	0.369	0.041
110	9.17	0.63	0.410	(0.644)	0.369	0.041
111	9.25	0.63	0.410	(0.641)	0.369	0.041
112	9.33	0.67	0.431	(0.638)	0.388	0.043
113	9.42	0.67	0.431	(0.635)	0.388	0.043
114	9.50	0.67	0.431	(0.632)	0.388	0.043
115	9.58	0.70	0.453	(0.629)	0.407	0.045
116	9.67	0.70	0.453	(0.626)	0.407	0.045
117	9.75	0.70	0.453	(0.623)	0.407	0.045
118	9.83	0.73	0.474	(0.620)	0.427	0.047
119	9.92	0.73	0.474	(0.617)	0.427	0.047
120	10.00	0.73	0.474	(0.614)	0.427	0.047
121	10.08	0.50	0.323	(0.611)	0.291	0.032
122	10.17	0.50	0.323	(0.608)	0.291	0.032
123	10.25	0.50	0.323	(0.605)	0.291	0.032
124	10.33	0.50	0.323	(0.602)	0.291	0.032
125	10.42	0.50	0.323	(0.599)	0.291	0.032
126	10.50	0.50	0.323	(0.596)	0.291	0.032
127	10.58	0.67	0.431	(0.593)	0.388	0.043

128	10.67	0.67	0.431	(0.590)	0.388	0.043
129	10.75	0.67	0.431	(0.587)	0.388	0.043
130	10.83	0.67	0.431	(0.584)	0.388	0.043
131	10.92	0.67	0.431	(0.582)	0.388	0.043
132	11.00	0.67	0.431	(0.579)	0.388	0.043
133	11.08	0.63	0.410	(0.576)	0.369	0.041
134	11.17	0.63	0.410	(0.573)	0.369	0.041
135	11.25	0.63	0.410	(0.570)	0.369	0.041
136	11.33	0.63	0.410	(0.567)	0.369	0.041
137	11.42	0.63	0.410	(0.565)	0.369	0.041
138	11.50	0.63	0.410	(0.562)	0.369	0.041
139	11.58	0.57	0.367	(0.559)	0.330	0.037
140	11.67	0.57	0.367	(0.556)	0.330	0.037
141	11.75	0.57	0.367	(0.553)	0.330	0.037
142	11.83	0.60	0.388	(0.551)	0.349	0.039
143	11.92	0.60	0.388	(0.548)	0.349	0.039
144	12.00	0.60	0.388	(0.545)	0.349	0.039
145	12.08	0.83	0.539	(0.542)	0.485	0.054
146	12.17	0.83	0.539	(0.540)	0.485	0.054
147	12.25	0.83	0.539	(0.537)	0.485	0.054
148	12.33	0.87	0.561	(0.534)	0.505	0.056
149	12.42	0.87	0.561	(0.532)	0.505	0.056
150	12.50	0.87	0.561	(0.529)	0.505	0.056
151	12.58	0.93	0.604	0.526	(0.543)	0.077
152	12.67	0.93	0.604	0.524	(0.543)	0.080
153	12.75	0.93	0.604	0.521	(0.543)	0.083
154	12.83	0.97	0.625	0.518	(0.563)	0.107
155	12.92	0.97	0.625	0.516	(0.563)	0.109
156	13.00	0.97	0.625	0.513	(0.563)	0.112
157	13.08	1.13	0.733	0.511	(0.660)	0.222
158	13.17	1.13	0.733	0.508	(0.660)	0.225
159	13.25	1.13	0.733	0.505	(0.660)	0.228
160	13.33	1.13	0.733	0.503	(0.660)	0.230
161	13.42	1.13	0.733	0.500	(0.660)	0.233
162	13.50	1.13	0.733	0.498	(0.660)	0.235
163	13.58	0.77	0.496	(0.495)	0.446	0.050
164	13.67	0.77	0.496	(0.493)	0.446	0.050
165	13.75	0.77	0.496	(0.490)	0.446	0.050

166	13.83	0.77	0.496	(0.488)	0.446	0.050
167	13.92	0.77	0.496	(0.485)	0.446	0.050
168	14.00	0.77	0.496	(0.483)	0.446	0.050
169	14.08	0.90	0.582	0.480	(0.524)	0.102
170	14.17	0.90	0.582	0.478	(0.524)	0.104
171	14.25	0.90	0.582	0.475	(0.524)	0.107
172	14.33	0.87	0.561	0.473	(0.505)	0.088
173	14.42	0.87	0.561	0.471	(0.505)	0.090
174	14.50	0.87	0.561	0.468	(0.505)	0.092
175	14.58	0.87	0.561	0.466	(0.505)	0.095
176	14.67	0.87	0.561	0.463	(0.505)	0.097
177	14.75	0.87	0.561	0.461	(0.505)	0.100
178	14.83	0.83	0.539	0.459	(0.485)	0.080
179	14.92	0.83	0.539	0.456	(0.485)	0.083
180	15.00	0.83	0.539	0.454	(0.485)	0.085
181	15.08	0.80	0.517	0.452	(0.466)	0.066
182	15.17	0.80	0.517	0.449	(0.466)	0.068
183	15.25	0.80	0.517	0.447	(0.466)	0.070
184	15.33	0.77	0.496	0.445	(0.446)	0.051
185	15.42	0.77	0.496	0.442	(0.446)	0.054
186	15.50	0.77	0.496	0.440	(0.446)	0.056
187	15.58	0.63	0.410	(0.438)	0.369	0.041
188	15.67	0.63	0.410	(0.436)	0.369	0.041
189	15.75	0.63	0.410	(0.433)	0.369	0.041
190	15.83	0.63	0.410	(0.431)	0.369	0.041
191	15.92	0.63	0.410	(0.429)	0.369	0.041
192	16.00	0.63	0.410	(0.427)	0.369	0.041
193	16.08	0.13	0.086	(0.425)	0.078	0.009
194	16.17	0.13	0.086	(0.422)	0.078	0.009
195	16.25	0.13	0.086	(0.420)	0.078	0.009
196	16.33	0.13	0.086	(0.418)	0.078	0.009
197	16.42	0.13	0.086	(0.416)	0.078	0.009
198	16.50	0.13	0.086	(0.414)	0.078	0.009
199	16.58	0.10	0.065	(0.412)	0.058	0.006
200	16.67	0.10	0.065	(0.410)	0.058	0.006
201	16.75	0.10	0.065	(0.408)	0.058	0.006
202	16.83	0.10	0.065	(0.406)	0.058	0.006
203	16.92	0.10	0.065	(0.403)	0.058	0.006

204	17.00	0.10	0.065	(0.401)	0.058	0.006
205	17.08	0.17	0.108	(0.399)	0.097	0.011
206	17.17	0.17	0.108	(0.397)	0.097	0.011
207	17.25	0.17	0.108	(0.395)	0.097	0.011
208	17.33	0.17	0.108	(0.393)	0.097	0.011
209	17.42	0.17	0.108	(0.391)	0.097	0.011
210	17.50	0.17	0.108	(0.389)	0.097	0.011
211	17.58	0.17	0.108	(0.388)	0.097	0.011
212	17.67	0.17	0.108	(0.386)	0.097	0.011
213	17.75	0.17	0.108	(0.384)	0.097	0.011
214	17.83	0.13	0.086	(0.382)	0.078	0.009
215	17.92	0.13	0.086	(0.380)	0.078	0.009
216	18.00	0.13	0.086	(0.378)	0.078	0.009
217	18.08	0.13	0.086	(0.376)	0.078	0.009
218	18.17	0.13	0.086	(0.374)	0.078	0.009
219	18.25	0.13	0.086	(0.372)	0.078	0.009
220	18.33	0.13	0.086	(0.371)	0.078	0.009
221	18.42	0.13	0.086	(0.369)	0.078	0.009
222	18.50	0.13	0.086	(0.367)	0.078	0.009
223	18.58	0.10	0.065	(0.365)	0.058	0.006
224	18.67	0.10	0.065	(0.364)	0.058	0.006
225	18.75	0.10	0.065	(0.362)	0.058	0.006
226	18.83	0.07	0.043	(0.360)	0.039	0.004
227	18.92	0.07	0.043	(0.358)	0.039	0.004
228	19.00	0.07	0.043	(0.357)	0.039	0.004
229	19.08	0.10	0.065	(0.355)	0.058	0.006
230	19.17	0.10	0.065	(0.353)	0.058	0.006
231	19.25	0.10	0.065	(0.352)	0.058	0.006
232	19.33	0.13	0.086	(0.350)	0.078	0.009
233	19.42	0.13	0.086	(0.348)	0.078	0.009
234	19.50	0.13	0.086	(0.347)	0.078	0.009
235	19.58	0.10	0.065	(0.345)	0.058	0.006
236	19.67	0.10	0.065	(0.344)	0.058	0.006
237	19.75	0.10	0.065	(0.342)	0.058	0.006
238	19.83	0.07	0.043	(0.340)	0.039	0.004
239	19.92	0.07	0.043	(0.339)	0.039	0.004
240	20.00	0.07	0.043	(0.337)	0.039	0.004
241	20.08	0.10	0.065	(0.336)	0.058	0.006

242	20.17	0.10	0.065	(0.334)	0.058	0.006
243	20.25	0.10	0.065	(0.333)	0.058	0.006
244	20.33	0.10	0.065	(0.332)	0.058	0.006
245	20.42	0.10	0.065	(0.330)	0.058	0.006
246	20.50	0.10	0.065	(0.329)	0.058	0.006
247	20.58	0.10	0.065	(0.327)	0.058	0.006
248	20.67	0.10	0.065	(0.326)	0.058	0.006
249	20.75	0.10	0.065	(0.325)	0.058	0.006
250	20.83	0.07	0.043	(0.323)	0.039	0.004
251	20.92	0.07	0.043	(0.322)	0.039	0.004
252	21.00	0.07	0.043	(0.321)	0.039	0.004
253	21.08	0.10	0.065	(0.319)	0.058	0.006
254	21.17	0.10	0.065	(0.318)	0.058	0.006
255	21.25	0.10	0.065	(0.317)	0.058	0.006
256	21.33	0.07	0.043	(0.316)	0.039	0.004
257	21.42	0.07	0.043	(0.315)	0.039	0.004
258	21.50	0.07	0.043	(0.313)	0.039	0.004
259	21.58	0.10	0.065	(0.312)	0.058	0.006
260	21.67	0.10	0.065	(0.311)	0.058	0.006
261	21.75	0.10	0.065	(0.310)	0.058	0.006
262	21.83	0.07	0.043	(0.309)	0.039	0.004
263	21.92	0.07	0.043	(0.308)	0.039	0.004
264	22.00	0.07	0.043	(0.307)	0.039	0.004
265	22.08	0.10	0.065	(0.306)	0.058	0.006
266	22.17	0.10	0.065	(0.305)	0.058	0.006
267	22.25	0.10	0.065	(0.304)	0.058	0.006
268	22.33	0.07	0.043	(0.303)	0.039	0.004
269	22.42	0.07	0.043	(0.302)	0.039	0.004
270	22.50	0.07	0.043	(0.301)	0.039	0.004
271	22.58	0.07	0.043	(0.300)	0.039	0.004
272	22.67	0.07	0.043	(0.299)	0.039	0.004
273	22.75	0.07	0.043	(0.299)	0.039	0.004
274	22.83	0.07	0.043	(0.298)	0.039	0.004
275	22.92	0.07	0.043	(0.297)	0.039	0.004
276	23.00	0.07	0.043	(0.296)	0.039	0.004
277	23.08	0.07	0.043	(0.296)	0.039	0.004
278	23.17	0.07	0.043	(0.295)	0.039	0.004
279	23.25	0.07	0.043	(0.294)	0.039	0.004

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280  23.33     0.07      0.043       (  0.294)       0.039        0.004
281  23.42     0.07      0.043       (  0.293)       0.039        0.004
282  23.50     0.07      0.043       (  0.293)       0.039        0.004
283  23.58     0.07      0.043       (  0.292)       0.039        0.004
284  23.67     0.07      0.043       (  0.292)       0.039        0.004
285  23.75     0.07      0.043       (  0.291)       0.039        0.004
286  23.83     0.07      0.043       (  0.291)       0.039        0.004
287  23.92     0.07      0.043       (  0.291)       0.039        0.004
288  24.00     0.07      0.043       (  0.291)       0.039        0.004
           (Loss Rate Not Used)
    Sum =     100.0                                    Sum =      8.1
     Flood volume = Effective rainfall      0.68(In)
      times area       1.1(Ac.)/[(In)/(Ft.)] =       0.1(Ac.Ft)
     Total soil loss =      4.71(In)
     Total soil loss =     0.416(Ac.Ft)
     Total rainfall =      5.39(In)
     Flood volume =        2601.3 Cubic Feet
     Total soil loss =       18138.3 Cubic Feet
     ---------------------------------------------------------------------
      Peak flow rate of this hydrograph =      0.251(CFS)
     ---------------------------------------------------------------------
     +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                         24 - H O U R    S T O R M
                    R u n o f f      H y d r o g r a p h
     ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

     ---------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
 ---------------------------------------------------------------------
   0+ 5       0.0000      0.00  Q         |         |         |         |
   0+10       0.0001      0.00  Q         |         |         |         |
   0+15       0.0001      0.00  Q         |         |         |         |
   0+20       0.0001      0.01  Q         |         |         |         |
   0+25       0.0002      0.01  Q         |         |         |         |
   0+30       0.0002      0.01  Q         |         |         |         |
   0+35       0.0003      0.01  Q         |         |         |         |
   0+40       0.0003      0.01  Q         |         |         |         |
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0+45	0.0004	0.01	Q				
0+50	0.0004	0.01	Q				
0+55	0.0005	0.01	Q				
1+ 0	0.0006	0.01	Q				
1+ 5	0.0006	0.01	Q				
1+10	0.0007	0.01	Q				
1+15	0.0007	0.01	Q				
1+20	0.0008	0.01	Q				
1+25	0.0008	0.01	Q				
1+30	0.0009	0.01	Q				
1+35	0.0009	0.01	Q				
1+40	0.0010	0.01	Q				
1+45	0.0010	0.01	Q				
1+50	0.0011	0.01	Q				
1+55	0.0011	0.01	Q				
2+ 0	0.0012	0.01	Q				
2+ 5	0.0013	0.01	Q				
2+10	0.0013	0.01	Q				
2+15	0.0014	0.01	Q				
2+20	0.0014	0.01	Q				
2+25	0.0015	0.01	QV				
2+30	0.0016	0.01	QV				
2+35	0.0017	0.01	QV				
2+40	0.0017	0.01	QV				
2+45	0.0018	0.01	QV				
2+50	0.0019	0.01	QV				
2+55	0.0020	0.01	QV				
3+ 0	0.0020	0.01	QV				
3+ 5	0.0021	0.01	QV				
3+10	0.0022	0.01	QV				
3+15	0.0023	0.01	QV				
3+20	0.0024	0.01	QV				
3+25	0.0024	0.01	QV				
3+30	0.0025	0.01	QV				
3+35	0.0026	0.01	QV				
3+40	0.0027	0.01	QV				
3+45	0.0028	0.01	QV				
3+50	0.0029	0.01	QV				

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3+55       0.0030      0.01  QV         |          |          |          |
4+ 0       0.0030      0.01  Q V        |          |          |          |
4+ 5       0.0031      0.01  Q V        |          |          |          |
4+10       0.0032      0.01  Q V        |          |          |          |
4+15       0.0033      0.01  Q V        |          |          |          |
4+20       0.0034      0.02  Q V        |          |          |          |
4+25       0.0036      0.02  Q V        |          |          |          |
4+30       0.0037      0.02  Q V        |          |          |          |
4+35       0.0038      0.02  Q V        |          |          |          |
4+40       0.0039      0.02  Q V        |          |          |          |
4+45       0.0040      0.02  Q V        |          |          |          |
4+50       0.0041      0.02  Q V        |          |          |          |
4+55       0.0043      0.02  Q V        |          |          |          |
5+ 0       0.0044      0.02  Q V        |          |          |          |
5+ 5       0.0045      0.01  Q V        |          |          |          |
5+10       0.0046      0.01  Q  V       |          |          |          |
5+15       0.0047      0.01  Q  V       |          |          |          |
5+20       0.0048      0.02  Q  V       |          |          |          |
5+25       0.0049      0.02  Q  V       |          |          |          |
5+30       0.0050      0.02  Q  V       |          |          |          |
5+35       0.0051      0.02  Q  V       |          |          |          |
5+40       0.0053      0.02  Q  V       |          |          |          |
5+45       0.0054      0.02  Q  V       |          |          |          |
5+50       0.0055      0.02  Q  V       |          |          |          |
5+55       0.0056      0.02  Q  V       |          |          |          |
6+ 0       0.0058      0.02  Q  V       |          |          |          |
6+ 5       0.0059      0.02  Q  V       |          |          |          |
6+10       0.0060      0.02  Q   V      |          |          |          |
6+15       0.0062      0.02  Q   V      |          |          |          |
6+20       0.0063      0.02  Q   V      |          |          |          |
6+25       0.0065      0.02  Q   V      |          |          |          |
6+30       0.0066      0.02  Q   V      |          |          |          |
6+35       0.0068      0.02  Q   V      |          |          |          |
6+40       0.0069      0.02  Q   V      |          |          |          |
6+45       0.0071      0.02  Q   V      |          |          |          |
6+50       0.0073      0.02  Q   V      |          |          |          |
6+55       0.0074      0.02  Q   V      |          |          |          |
7+ 0       0.0076      0.02  Q    V     |          |          |          |
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 7+ 5       0.0077      0.02  Q    V    |          |          |          |
 7+10       0.0079      0.02  Q    V    |          |          |          |
 7+15       0.0080      0.02  Q    V    |          |          |          |
 7+20       0.0082      0.03  Q    V    |          |          |          |
 7+25       0.0084      0.03  Q    V    |          |          |          |
 7+30       0.0086      0.03  Q    V    |          |          |          |
 7+35       0.0088      0.03  Q    V    |          |          |          |
 7+40       0.0090      0.03  Q    V    |          |          |          |
 7+45       0.0091      0.03  Q     V   |          |          |          |
 7+50       0.0093      0.03  Q     V   |          |          |          |
 7+55       0.0096      0.03  Q     V   |          |          |          |
 8+ 0       0.0098      0.03  Q     V   |          |          |          |
 8+ 5       0.0100      0.03  Q     V   |          |          |          |
 8+10       0.0102      0.03  Q     V   |          |          |          |
 8+15       0.0105      0.03  Q      V  |          |          |          |
 8+20       0.0107      0.03  Q      V  |          |          |          |
 8+25       0.0110      0.03  Q      V  |          |          |          |
 8+30       0.0112      0.03  Q      V  |          |          |          |
 8+35       0.0114      0.04  Q      V  |          |          |          |
 8+40       0.0117      0.04  Q      V  |          |          |          |
 8+45       0.0120      0.04  Q       V |          |          |          |
 8+50       0.0122      0.04  Q       V |          |          |          |
 8+55       0.0125      0.04  Q       V |          |          |          |
 9+ 0       0.0128      0.04  Q       V |          |          |          |
 9+ 5       0.0131      0.04  Q       V |          |          |          |
 9+10       0.0134      0.04  Q       V |          |          |          |
 9+15       0.0137      0.04  Q        V|          |          |          |
 9+20       0.0140      0.05  Q        V|          |          |          |
 9+25       0.0143      0.05  Q        V|          |          |          |
 9+30       0.0146      0.05  Q        V|          |          |          |
 9+35       0.0150      0.05  Q         V          |          |          |
 9+40       0.0153      0.05  Q         V          |          |          |
 9+45       0.0156      0.05  Q         V          |          |          |
 9+50       0.0160      0.05  Q         V          |          |          |
 9+55       0.0163      0.05  Q         V          |          |          |
10+ 0       0.0167      0.05  Q          |V         |          |          |
10+ 5       0.0169      0.03  Q          |V         |          |          |
10+10       0.0171      0.03  Q          |V         |          |          |
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10+15       0.0174      0.03  Q          |V         |          |          |
10+20       0.0176      0.03  Q          |V         |          |          |
10+25       0.0179      0.03  Q          |V         |          |          |
10+30       0.0181      0.03  Q          | V        |          |          |
10+35       0.0184      0.05  Q          | V        |          |          |
10+40       0.0187      0.05  Q          | V        |          |          |
10+45       0.0190      0.05  Q          | V        |          |          |
10+50       0.0194      0.05  Q          | V        |          |          |
10+55       0.0197      0.05  Q          |  V       |          |          |
11+ 0       0.0200      0.05  Q          |  V       |          |          |
11+ 5       0.0203      0.04  Q          |  V       |          |          |
11+10       0.0206      0.04  Q          |  V       |          |          |
11+15       0.0209      0.04  Q          |   V      |          |          |
11+20       0.0212      0.04  Q          |   V      |          |          |
11+25       0.0215      0.04  Q          |   V      |          |          |
11+30       0.0218      0.04  Q          |   V      |          |          |
11+35       0.0221      0.04  Q          |   V      |          |          |
11+40       0.0223      0.04  Q          |   V      |          |          |
11+45       0.0226      0.04  Q          |    V     |          |          |
11+50       0.0229      0.04  Q          |    V     |          |          |
11+55       0.0232      0.04  Q          |    V     |          |          |
12+ 0       0.0235      0.04  Q          |    V     |          |          |
12+ 5       0.0239      0.06  Q          |    V     |          |          |
12+10       0.0243      0.06  Q          |     V    |          |          |
12+15       0.0247      0.06  Q          |     V    |          |          |
12+20       0.0251      0.06  Q          |     V    |          |          |
12+25       0.0255      0.06  Q          |      V   |          |          |
12+30       0.0259      0.06  Q          |      V   |          |          |
12+35       0.0265      0.08  Q          |      V   |          |          |
12+40       0.0271      0.09  Q          |       V  |          |          |
12+45       0.0277      0.09  Q          |       V  |          |          |
12+50       0.0285      0.11  Q          |        V |          |          |
12+55       0.0293      0.12  Q          |        V |          |          |
13+ 0       0.0301      0.12  Q          |         V          |          |
13+ 5       0.0317      0.24  Q          |          |V         |          |
13+10       0.0334      0.24  Q          |          | V        |          |
13+15       0.0351      0.24  Q          |          |  V       |          |
13+20       0.0367      0.25  Q          |          |   V      |          |
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13+25       0.0385      0.25  Q          |          |    V     |          |
13+30       0.0402      0.25  |Q         |          |     V    |          |
13+35       0.0406      0.05  Q          |          |      V   |          |
13+40       0.0409      0.05  Q          |          |      V   |          |
13+45       0.0413      0.05  Q          |          |      V   |          |
13+50       0.0417      0.05  Q          |          |      V   |          |
13+55       0.0420      0.05  Q          |          |       V  |          |
14+ 0       0.0424      0.05  Q          |          |       V  |          |
14+ 5       0.0431      0.11  Q          |          |       V  |          |
14+10       0.0439      0.11  Q          |          |        V |          |
14+15       0.0447      0.11  Q          |          |        V |          |
14+20       0.0453      0.09  Q          |          |         V          |
14+25       0.0460      0.10  Q          |          |         V          |
14+30       0.0467      0.10  Q          |          |          |V         |
14+35       0.0474      0.10  Q          |          |          |V         |
14+40       0.0481      0.10  Q          |          |          | V        |
14+45       0.0488      0.11  Q          |          |          | V        |
14+50       0.0494      0.09  Q          |          |          |  V       |
14+55       0.0500      0.09  Q          |          |          |  V       |
15+ 0       0.0507      0.09  Q          |          |          |  V       |
15+ 5       0.0511      0.07  Q          |          |          |   V      |
15+10       0.0516      0.07  Q          |          |          |   V      |
15+15       0.0522      0.08  Q          |          |          |   V      |
15+20       0.0525      0.05  Q          |          |          |    V     |
15+25       0.0529      0.06  Q          |          |          |    V     |
15+30       0.0533      0.06  Q          |          |          |    V     |
15+35       0.0536      0.04  Q          |          |          |    V     |
15+40       0.0539      0.04  Q          |          |          |     V    |
15+45       0.0542      0.04  Q          |          |          |     V    |
15+50       0.0545      0.04  Q          |          |          |     V    |
15+55       0.0548      0.04  Q          |          |          |     V    |
16+ 0       0.0551      0.04  Q          |          |          |     V    |
16+ 5       0.0552      0.01  Q          |          |          |     V    |
16+10       0.0553      0.01  Q          |          |          |      V   |
16+15       0.0553      0.01  Q          |          |          |      V   |
16+20       0.0554      0.01  Q          |          |          |      V   |
16+25       0.0555      0.01  Q          |          |          |      V   |
16+30       0.0555      0.01  Q          |          |          |      V   |
```

16+35	0.0556	0.01	Q	|	|	|	V |
16+40	0.0556	0.01	Q	|	|	|	V |
16+45	0.0557	0.01	Q	|	|	|	V |
16+50	0.0557	0.01	Q	|	|	|	V |
16+55	0.0558	0.01	Q	|	|	|	V |
17+ 0	0.0558	0.01	Q	|	|	|	V |
17+ 5	0.0559	0.01	Q	|	|	|	V |
17+10	0.0560	0.01	Q	|	|	|	V |
17+15	0.0561	0.01	Q	|	|	|	V |
17+20	0.0561	0.01	Q	|	|	|	V |
17+25	0.0562	0.01	Q	|	|	|	V |
17+30	0.0563	0.01	Q	|	|	|	V |
17+35	0.0564	0.01	Q	|	|	|	V |
17+40	0.0564	0.01	Q	|	|	|	V |
17+45	0.0565	0.01	Q	|	|	|	V |
17+50	0.0566	0.01	Q	|	|	|	V |
17+55	0.0567	0.01	Q	|	|	|	V |
18+ 0	0.0567	0.01	Q	|	|	|	V |
18+ 5	0.0568	0.01	Q	|	|	|	V |
18+10	0.0568	0.01	Q	|	|	|	V |
18+15	0.0569	0.01	Q	|	|	|	V |
18+20	0.0570	0.01	Q	|	|	|	V |
18+25	0.0570	0.01	Q	|	|	|	V |
18+30	0.0571	0.01	Q	|	|	|	V |
18+35	0.0571	0.01	Q	|	|	|	V |
18+40	0.0572	0.01	Q	|	|	|	V |
18+45	0.0572	0.01	Q	|	|	|	V |
18+50	0.0573	0.00	Q	|	|	|	V |
18+55	0.0573	0.00	Q	|	|	|	V |
19+ 0	0.0573	0.00	Q	|	|	|	V |
19+ 5	0.0574	0.01	Q	|	|	|	V |
19+10	0.0574	0.01	Q	|	|	|	V |
19+15	0.0575	0.01	Q	|	|	|	V |
19+20	0.0575	0.01	Q	|	|	|	V |
19+25	0.0576	0.01	Q	|	|	|	V |
19+30	0.0577	0.01	Q	|	|	|	V |
19+35	0.0577	0.01	Q	|	|	|	V |
19+40	0.0578	0.01	Q	|	|	|	V |

19+45	0.0578	0.01	Q	|	|	|	V |
19+50	0.0578	0.00	Q	|	|	|	V |
19+55	0.0579	0.00	Q	|	|	|	V |
20+ 0	0.0579	0.00	Q	|	|	|	V |
20+ 5	0.0580	0.01	Q	|	|	|	V |
20+10	0.0580	0.01	Q	|	|	|	V |
20+15	0.0581	0.01	Q	|	|	|	V |
20+20	0.0581	0.01	Q	|	|	|	V |
20+25	0.0581	0.01	Q	|	|	|	V |
20+30	0.0582	0.01	Q	|	|	|	V |
20+35	0.0582	0.01	Q	|	|	|	V|
20+40	0.0583	0.01	Q	|	|	|	V|
20+45	0.0583	0.01	Q	|	|	|	V|
20+50	0.0584	0.00	Q	|	|	|	V|
20+55	0.0584	0.00	Q	|	|	|	V|
21+ 0	0.0584	0.00	Q	|	|	|	V|
21+ 5	0.0585	0.01	Q	|	|	|	V|
21+10	0.0585	0.01	Q	|	|	|	V|
21+15	0.0586	0.01	Q	|	|	|	V|
21+20	0.0586	0.00	Q	|	|	|	V|
21+25	0.0586	0.00	Q	|	|	|	V|
21+30	0.0587	0.00	Q	|	|	|	V|
21+35	0.0587	0.01	Q	|	|	|	V|
21+40	0.0588	0.01	Q	|	|	|	V|
21+45	0.0588	0.01	Q	|	|	|	V|
21+50	0.0588	0.00	Q	|	|	|	V|
21+55	0.0589	0.00	Q	|	|	|	V|
22+ 0	0.0589	0.00	Q	|	|	|	V|
22+ 5	0.0590	0.01	Q	|	|	|	V|
22+10	0.0590	0.01	Q	|	|	|	V|
22+15	0.0591	0.01	Q	|	|	|	V|
22+20	0.0591	0.00	Q	|	|	|	V|
22+25	0.0591	0.00	Q	|	|	|	V|
22+30	0.0591	0.00	Q	|	|	|	V|
22+35	0.0592	0.00	Q	|	|	|	V|
22+40	0.0592	0.00	Q	|	|	|	V|
22+45	0.0592	0.00	Q	|	|	|	V|
22+50	0.0593	0.00	Q	|	|	|	V|

```
   22+55       0.0593      0.00  Q          |          |          |         V|
   23+ 0       0.0593      0.00  Q          |          |          |         V|
   23+ 5       0.0594      0.00  Q          |          |          |         V|
   23+10       0.0594      0.00  Q          |          |          |         V|
   23+15       0.0594      0.00  Q          |          |          |         V|
   23+20       0.0595      0.00  Q          |          |          |         V|
   23+25       0.0595      0.00  Q          |          |          |         V|
   23+30       0.0595      0.00  Q          |          |          |         V|
   23+35       0.0596      0.00  Q          |          |          |         V|
   23+40       0.0596      0.00  Q          |          |          |         V|
   23+45       0.0596      0.00  Q          |          |          |         V|
   23+50       0.0597      0.00  Q          |          |          |         V|
   23+55       0.0597      0.00  Q          |          |          |         V|
   24+ 0       0.0597      0.00  Q          |          |          |         V|
-------------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 15- 100 YR, 1-hr

Drainage Area = 0.75(Ac.) = 0.001 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 0.75(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 100.00(Ft.)
Length along longest watercourse measured to centroid = 50.00(Ft.)
Length along longest watercourse = 0.019 Mi.
Length along longest watercourse measured to centroid = 0.009 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 52.8000 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.006 Hr.
Lag time =     0.38 Min.
25% of lag time =     0.10 Min.
40% of lag time =     0.15 Min.
Unit time =     5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.75             0.51                  0.39

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.75             1.61                  1.21

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.514(In)
Area Averaged 100-Year Rainfall =    1.610(In)

Point rain (area averaged) =    1.610(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    1.610(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     0.750           40.60         0.200
 Total Area Entered =      0.75(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
40.6  40.6      0.664     0.200        0.545       1.000      0.545
```

Sum (F) = 0.545

Area averaged mean soil loss (F) (In/Hr) = 0.545
Minimum soil loss rate ((In/Hr)) = 0.272
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

Slope of intensity-duration curve for a 1 hour storm =0.5500

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	100.000	0.756
	Sum =	100.000 Sum=	0.756

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	3.30	0.638	0.545	(0.574)	0.093
2	0.17	4.20	0.811	0.545	(0.730)	0.267
3	0.25	4.40	0.850	0.545	(0.765)	0.305
4	0.33	4.80	0.927	0.545	(0.835)	0.383
5	0.42	5.20	1.005	0.54		

U n i t H y d r o g r a p h A n a l y s i s

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Study date 01/03/23 File: VOLT153100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 15- 100 YR, 3-hr

Drainage Area = 0.75(Ac.) = 0.001 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 0.75(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 100.00(Ft.)
Length along longest watercourse measured to centroid = 50.00(Ft.)
Length along longest watercourse = 0.019 Mi.
Length along longest watercourse measured to centroid = 0.009 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 52.8000 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.006 Hr.
Lag time =     0.38 Min.
25% of lag time =     0.10 Min.
40% of lag time =     0.15 Min.
Unit time =     5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.75             0.86                  0.65

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.75             2.25                  1.69

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.864(In)
Area Averaged 100-Year Rainfall =    2.250(In)

Point rain (area averaged) =    2.250(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.250(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     0.750           40.60          0.200
 Total Area Entered =      0.75(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
40.6  40.6      0.664     0.200        0.545       1.000      0.545
```

Sum (F) = 0.545

Area averaged mean soil loss (F) (In/Hr) = 0.545
Minimum soil loss rate ((In/Hr)) = 0.272
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	1304.397	100.000	0.756
		Sum = 100.000	Sum= 0.756

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.351	(0.545)	0.316	0.035
2	0.17	1.30	0.351	(0.545)	0.316	0.035
3	0.25	1.10	0.297	(0.545)	0.267	0.030
4	0.33	1.50	0.405	(0.545)	0.364	0.040
5	0.42	1.50	0.405	(0.545)	0.364	0.040
6	0.50	1.80	0.486	(0.545)	0.437	0.049
7	0.58	1.50	0.405	(0.545)	0.364	0.040
8	0.67	1.80	0.486	(0.545)	0.437	0.049
9	0.75	1.80	0.486	(0.545)	0.437	0.049
10	0.83	1.50	0.405	(0.545)	0.364	0.040
11	0.92	1.60	0.432	(0.545)	0.389	0.043
12	1.00	1.80	0.486	(0.545)	0.437	0.049
13	1.08	2.20	0.594	(0.545)	0.535	0.059

```
14   1.17     2.20      0.594       (  0.545)       0.535        0.059
15   1.25     2.20      0.594       (  0.545)       0.535        0.059
16   1.33     2.00      0.540       (  0.545)       0.486        0.054
17   1.42     2.60      0.702          0.545    (  0.632)        0.157
18   1.50     2.70      0.729          0.545    (  0.656)        0.184
19   1.58     2.40      0.648          0.545    (  0.583)        0.103
20   1.67     2.70      0.729          0.545    (  0.656)        0.184
21   1.75     3.30      0.891          0.545    (  0.802)        0.346
22   1.83     3.10      0.837          0.545    (  0.753)        0.292
23   1.92     2.90      0.783          0.545    (  0.705)        0.238
24   2.00     3.00      0.810          0.545    (  0.729)        0.265
25   2.08     3.10      0.837          0.545    (  0.753)        0.292
26   2.17     4.20      1.134          0.545    (  1.021)        0.589
27   2.25     5.00      1.350          0.545    (  1.215)        0.805
28   2.33     3.50      0.945          0.545    (  0.850)        0.400
29   2.42     6.80      1.836          0.545    (  1.652)        1.291
30   2.50     7.30      1.971          0.545    (  1.774)        1.426
31   2.58     8.20      2.214          0.545    (  1.993)        1.669
32   2.67     5.90      1.593          0.545    (  1.434)        1.048
33   2.75     2.00      0.540       (  0.545)       0.486        0.054
34   2.83     1.80      0.486       (  0.545)       0.437        0.049
35   2.92     1.80      0.486       (  0.545)       0.437        0.049
36   3.00     0.60      0.162       (  0.545)       0.146        0.016
          (Loss Rate Not Used)
Sum =     100.0                                      Sum =    10.2
 Flood volume = Effective rainfall      0.85(In)
  times area       0.8(Ac.)/[(In)/(Ft.)] =       0.1(Ac.Ft)
 Total soil loss =      1.40(In)
 Total soil loss =     0.088(Ac.Ft)
 Total rainfall =      2.25(In)
 Flood volume =        2312.9 Cubic Feet
 Total soil loss =        3812.7 Cubic Feet
 ---------------------------------------------------------------------
  Peak flow rate of this hydrograph =      1.262(CFS)
 ---------------------------------------------------------------------
 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                    3 - H O U R    S T O R M
                R u n o f f     H y d r o g r a p h
```

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0002	0.03	Q				
0+10	0.0004	0.03	Q				
0+15	0.0005	0.02	Q				
0+20	0.0007	0.03	Q				
0+25	0.0009	0.03	Q				
0+30	0.0012	0.04	Q				
0+35	0.0014	0.03	QV				
0+40	0.0017	0.04	QV				
0+45	0.0019	0.04	QV				
0+50	0.0021	0.03	QV				
0+55	0.0023	0.03	QV				

U n i t H y d r o g r a p h A n a l y s i s

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Study date 01/03/23 File: VOLT156100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 15- 100 YR, 6-hr

Drainage Area = 0.75(Ac.) = 0.001 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 0.75(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 100.00(Ft.)
Length along longest watercourse measured to centroid = 50.00(Ft.)
Length along longest watercourse = 0.019 Mi.
Length along longest watercourse measured to centroid = 0.009 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 52.8000 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.006 Hr.
Lag time =     0.38 Min.
25% of lag time =     0.10 Min.
40% of lag time =     0.15 Min.
Unit time =     5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.75             1.20                  0.90

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.75             2.99                  2.24

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.200(In)
Area Averaged 100-Year Rainfall =    2.990(In)

Point rain (area averaged) =    2.990(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.990(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     0.750           40.60          0.200
 Total Area Entered =      0.75(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
40.6  40.6      0.664     0.200        0.545       1.000      0.545
```

Sum (F) = 0.545

Area averaged mean soil loss (F) (In/Hr) = 0.545
Minimum soil loss rate ((In/Hr)) = 0.272
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	1304.397	100.000	0.756
		Sum = 100.000	Sum= 0.756

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.179	(0.545)	0.161	0.018
2	0.17	0.60	0.215	(0.545)	0.194	0.022
3	0.25	0.60	0.215	(0.545)	0.194	0.022
4	0.33	0.60	0.215	(0.545)	0.194	0.022
5	0.42	0.60	0.215	(0.545)	0.194	0.022
6	0.50	0.70	0.251	(0.545)	0.226	0.025
7	0.58	0.70	0.251	(0.545)	0.226	0.025
8	0.67	0.70	0.251	(0.545)	0.226	0.025
9	0.75	0.70	0.251	(0.545)	0.226	0.025
10	0.83	0.70	0.251	(0.545)	0.226	0.025
11	0.92	0.70	0.251	(0.545)	0.226	0.025
12	1.00	0.80	0.287	(0.545)	0.258	0.029
13	1.08	0.80	0.287	(0.545)	0.258	0.029

14	1.17	0.80	0.287	(0.545)	0.258	0.029
15	1.25	0.80	0.287	(0.545)	0.258	0.029
16	1.33	0.80	0.287	(0.545)	0.258	0.029
17	1.42	0.80	0.287	(0.545)	0.258	0.029
18	1.50	0.80	0.287	(0.545)	0.258	0.029
19	1.58	0.80	0.287	(0.545)	0.258	0.029
20	1.67	0.80	0.287	(0.545)	0.258	0.029
21	1.75	0.80	0.287	(0.545)	0.258	0.029
22	1.83	0.80	0.287	(0.545)	0.258	0.029
23	1.92	0.80	0.287	(0.545)	0.258	0.029
24	2.00	0.90	0.323	(0.545)	0.291	0.032
25	2.08	0.80	0.287	(0.545)	0.258	0.029
26	2.17	0.90	0.323	(0.545)	0.291	0.032
27	2.25	0.90	0.323	(0.545)	0.291	0.032
28	2.33	0.90	0.323	(0.545)	0.291	0.032
29	2.42	0.90	0.323	(0.545)	0.291	0.032
30	2.50	0.90	0.323	(0.545)	0.291	0.032
31	2.58	0.90	0.323	(0.545)	0.291	0.032
32	2.67	0.90	0.323	(0.545)	0.291	0.032
33	2.75	1.00	0.359	(0.545)	0.323	0.036
34	2.83	1.00	0.359	(0.545)	0.323	0.036
35	2.92	1.00	0.359	(0.545)	0.323	0.036
36	3.00	1.00	0.359	(0.545)	0.323	0.036
37	3.08	1.00	0.359	(0.545)	0.323	0.036
38	3.17	1.10	0.395	(0.545)	0.355	0.039
39	3.25	1.10	0.395	(0.545)	0.355	0.039
40	3.33	1.10	0.395	(0.545)	0.355	0.039
41	3.42	1.20	0.431	(0.545)	0.388	0.043
42	3.50	1.30	0.466	(0.545)	0.420	0.047
43	3.58	1.40	0.502	(0.545)	0.452	0.050
44	3.67	1.40	0.502	(0.545)	0.452	0.050
45	3.75	1.50	0.538	(0.545)	0.484	0.054
46	3.83	1.50	0.538	(0.545)	0.484	0.054
47	3.92	1.60	0.574	(0.545)	0.517	0.057
48	4.00	1.60	0.574	(0.545)	0.517	0.057
49	4.08	1.70	0.610	0.545	(0.549)	0.065
50	4.17	1.80	0.646	0.545	(0.581)	0.101
51	4.25	1.90	0.682	0.545	(0.614)	0.137

```
52   4.33     2.00      0.718          0.545    (  0.646)        0.173
53   4.42     2.10      0.753          0.545    (  0.678)        0.209
54   4.50     2.10      0.753          0.545    (  0.678)        0.209
55   4.58     2.20      0.789          0.545    (  0.710)        0.245
56   4.67     2.30      0.825          0.545    (  0.743)        0.281
57   4.75     2.40      0.861          0.545    (  0.775)        0.317
58   4.83     2.40      0.861          0.545    (  0.775)        0.317
59   4.92     2.50      0.897          0.545    (  0.807)        0.352
60   5.00     2.60      0.933          0.545    (  0.840)        0.388
61   5.08     3.10      1.112          0.545    (  1.001)        0.568
62   5.17     3.60      1.292          0.545    (  1.163)        0.747
63   5.25     3.90      1.399          0.545    (  1.259)        0.855
64   5.33     4.20      1.507          0.545    (  1.356)        0.962
65   5.42     4.70      1.686          0.545    (  1.518)        1.142
66   5.50     5.60      2.009          0.545    (  1.808)        1.465
67   5.58     1.90      0.682          0.545    (  0.614)        0.137
68   5.67     0.90      0.323       (  0.545)       0.291        0.032
69   5.75     0.60      0.215       (  0.545)       0.194        0.022
70   5.83     0.50      0.179       (  0.545)       0.161        0.018
71   5.92     0.30      0.108       (  0.545)       0.097        0.011
72   6.00     0.20      0.072       (  0.545)       0.065        0.007
          (Loss Rate Not Used)
   Sum =     100.0                                    Sum =    10.4
    Flood volume = Effective rainfall      0.86(In)
     times area       0.8(Ac.)/[(In)/(Ft.)] =       0.1(Ac.Ft)
    Total soil loss =      2.13(In)
    Total soil loss =     0.133(Ac.Ft)
    Total rainfall =      2.99(In)
    Flood volume =        2349.5 Cubic Feet
    Total soil loss =        5790.8 Cubic Feet
    ---------------------------------------------------------------------
     Peak flow rate of this hydrograph =      1.108(CFS)
    ---------------------------------------------------------------------
    +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        6 - H O U R    S T O R M
                    R u n o f f      H y d r o g r a p h
    ---------------------------------------------------------------------
                Hydrograph in   5   Minute intervals ((CFS))
```

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0001	0.01	Q				
0+10	0.0002	0.02	Q				
0+15	0.0003	0.02	Q				
0+20	0.0004	0.02	Q				
0+25	0.0005	0.02	Q				
0+30	0.0007	0.02	Q				
0+35	0.0008	0.02	Q				
0+40	0.0009	0.02	Q				
0+45	0.0011	0.02	Q				
0+50	0.0012	0.02	Q				
0+55	0.0013	0.02	Q				
1+ 0	0.0015	0.02	QV				
1+ 5	0.0016	0.02	QV				
1+10	0.0018	0.02	QV				
1+15	0.0019	0.02	QV				
1+20	0.0021	0.02	QV				
1+25	0.0022	0.02	QV				
1+30	0.0024	0.02	QV				
1+35	0.0025	0.02	QV				
1+40	0.0027	0.02	QV				
1+45	0.0028	0.02	Q V				
1+50	0.0030	0.02	Q V				
1+55	0.0031	0.02	Q V				
2+ 0	0.0033	0.02	Q V				
2+ 5	0.0034	0.02	Q V				
2+10	0.0036	0.02	Q V				
2+15	0.0038	0.02	Q V				
2+20	0.0039	0.02	Q V				
2+25	0.0041	0.02	Q V				
2+30	0.0043	0.02	Q V				
2+35	0.0044						

U n i t H y d r o g r a p h A n a l y s i s

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Study date 01/03/23 File: VOLT1524100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 15- 100 YR, 24-hr

Drainage Area = 0.75(Ac.) = 0.001 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 0.75(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 100.00(Ft.)
Length along longest watercourse measured to centroid = 50.00(Ft.)
Length along longest watercourse = 0.019 Mi.
Length along longest watercourse measured to centroid = 0.009 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 52.8000 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.006 Hr.
Lag time =     0.38 Min.
25% of lag time =     0.10 Min.
40% of lag time =     0.15 Min.
Unit time =     5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.75             2.06                  1.54

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.75             5.39                  4.04

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    2.060(In)
Area Averaged 100-Year Rainfall =    5.390(In)

Point rain (area averaged) =    5.390(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    5.390(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     0.750           40.60         0.200
 Total Area Entered =      0.75(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
40.6  40.6      0.664     0.200        0.545       1.000      0.545
```

Sum (F) = 0.545

Area averaged mean soil loss (F) (In/Hr) = 0.545
Minimum soil loss rate ((In/Hr)) = 0.272
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	1304.397	100.000	0.756
		Sum = 100.000	Sum= 0.756

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.043	(0.965)	0.039	0.004
2	0.17	0.07	0.043	(0.962)	0.039	0.004
3	0.25	0.07	0.043	(0.958)	0.039	0.004
4	0.33	0.10	0.065	(0.954)	0.058	0.006
5	0.42	0.10	0.065	(0.950)	0.058	0.006
6	0.50	0.10	0.065	(0.947)	0.058	0.006
7	0.58	0.10	0.065	(0.943)	0.058	0.006
8	0.67	0.10	0.065	(0.939)	0.058	0.006
9	0.75	0.10	0.065	(0.936)	0.058	0.006
10	0.83	0.13	0.086	(0.932)	0.078	0.009
11	0.92	0.13	0.086	(0.928)	0.078	0.009
12	1.00	0.13	0.086	(0.925)	0.078	0.009
13	1.08	0.10	0.065	(0.921)	0.058	0.006

14	1.17	0.10	0.065	(0.917)	0.058	0.006
15	1.25	0.10	0.065	(0.914)	0.058	0.006
16	1.33	0.10	0.065	(0.910)	0.058	0.006
17	1.42	0.10	0.065	(0.907)	0.058	0.006
18	1.50	0.10	0.065	(0.903)	0.058	0.006
19	1.58	0.10	0.065	(0.899)	0.058	0.006
20	1.67	0.10	0.065	(0.896)	0.058	0.006
21	1.75	0.10	0.065	(0.892)	0.058	0.006
22	1.83	0.13	0.086	(0.889)	0.078	0.009
23	1.92	0.13	0.086	(0.885)	0.078	0.009
24	2.00	0.13	0.086	(0.881)	0.078	0.009
25	2.08	0.13	0.086	(0.878)	0.078	0.009
26	2.17	0.13	0.086	(0.874)	0.078	0.009
27	2.25	0.13	0.086	(0.871)	0.078	0.009
28	2.33	0.13	0.086	(0.867)	0.078	0.009
29	2.42	0.13	0.086	(0.864)	0.078	0.009
30	2.50	0.13	0.086	(0.860)	0.078	0.009
31	2.58	0.17	0.108	(0.857)	0.097	0.011
32	2.67	0.17	0.108	(0.853)	0.097	0.011
33	2.75	0.17	0.108	(0.850)	0.097	0.011
34	2.83	0.17	0.108	(0.846)	0.097	0.011
35	2.92	0.17	0.108	(0.843)	0.097	0.011
36	3.00	0.17	0.108	(0.839)	0.097	0.011
37	3.08	0.17	0.108	(0.836)	0.097	0.011
38	3.17	0.17	0.108	(0.832)	0.097	0.011
39	3.25	0.17	0.108	(0.829)	0.097	0.011
40	3.33	0.17	0.108	(0.825)	0.097	0.011
41	3.42	0.17	0.108	(0.822)	0.097	0.011
42	3.50	0.17	0.108	(0.818)	0.097	0.011
43	3.58	0.17	0.108	(0.815)	0.097	0.011
44	3.67	0.17	0.108	(0.811)	0.097	0.011
45	3.75	0.17	0.108	(0.808)	0.097	0.011
46	3.83	0.20	0.129	(0.805)	0.116	0.013
47	3.92	0.20	0.129	(0.801)	0.116	0.013
48	4.00	0.20	0.129	(0.798)	0.116	0.013
49	4.08	0.20	0.129	(0.794)	0.116	0.013
50	4.17	0.20	0.129	(0.791)	0.116	0.013
51	4.25	0.20	0.129	(0.788)	0.116	0.013

52	4.33	0.23	0.151	(0.784)	0.136	0.015
53	4.42	0.23	0.151	(0.781)	0.136	0.015
54	4.50	0.23	0.151	(0.778)	0.136	0.015
55	4.58	0.23	0.151	(0.774)	0.136	0.015
56	4.67	0.23	0.151	(0.771)	0.136	0.015
57	4.75	0.23	0.151	(0.768)	0.136	0.015
58	4.83	0.27	0.172	(0.764)	0.155	0.017
59	4.92	0.27	0.172	(0.761)	0.155	0.017
60	5.00	0.27	0.172	(0.758)	0.155	0.017
61	5.08	0.20	0.129	(0.754)	0.116	0.013
62	5.17	0.20	0.129	(0.751)	0.116	0.013
63	5.25	0.20	0.129	(0.748)	0.116	0.013
64	5.33	0.23	0.151	(0.745)	0.136	0.015
65	5.42	0.23	0.151	(0.741)	0.136	0.015
66	5.50	0.23	0.151	(0.738)	0.136	0.015
67	5.58	0.27	0.172	(0.735)	0.155	0.017
68	5.67	0.27	0.172	(0.732)	0.155	0.017
69	5.75	0.27	0.172	(0.728)	0.155	0.017
70	5.83	0.27	0.172	(0.725)	0.155	0.017
71	5.92	0.27	0.172	(0.722)	0.155	0.017
72	6.00	0.27	0.172	(0.719)	0.155	0.017
73	6.08	0.30	0.194	(0.716)	0.175	0.019
74	6.17	0.30	0.194	(0.712)	0.175	0.019
75	6.25	0.30	0.194	(0.709)	0.175	0.019
76	6.33	0.30	0.194	(0.706)	0.175	0.019
77	6.42	0.30	0.194	(0.703)	0.175	0.019
78	6.50	0.30	0.194	(0.700)	0.175	0.019
79	6.58	0.33	0.216	(0.697)	0.194	0.022
80	6.67	0.33	0.216	(0.694)	0.194	0.022
81	6.75	0.33	0.216	(0.690)	0.194	0.022
82	6.83	0.33	0.216	(0.687)	0.194	0.022
83	6.92	0.33	0.216	(0.684)	0.194	0.022
84	7.00	0.33	0.216	(0.681)	0.194	0.022
85	7.08	0.33	0.216	(0.678)	0.194	0.022
86	7.17	0.33	0.216	(0.675)	0.194	0.022
87	7.25	0.33	0.216	(0.672)	0.194	0.022
88	7.33	0.37	0.237	(0.669)	0.213	0.024
89	7.42	0.37	0.237	(0.666)	0.213	0.024

90	7.50	0.37	0.237	(0.663)	0.213	0.024
91	7.58	0.40	0.259	(0.660)	0.233	0.026
92	7.67	0.40	0.259	(0.657)	0.233	0.026
93	7.75	0.40	0.259	(0.654)	0.233	0.026
94	7.83	0.43	0.280	(0.650)	0.252	0.028
95	7.92	0.43	0.280	(0.647)	0.252	0.028
96	8.00	0.43	0.280	(0.644)	0.252	0.028
97	8.08	0.50	0.323	(0.641)	0.291	0.032
98	8.17	0.50	0.323	(0.639)	0.291	0.032
99	8.25	0.50	0.323	(0.636)	0.291	0.032
100	8.33	0.50	0.323	(0.633)	0.291	0.032
101	8.42	0.50	0.323	(0.630)	0.291	0.032
102	8.50	0.50	0.323	(0.627)	0.291	0.032
103	8.58	0.53	0.345	(0.624)	0.310	0.034
104	8.67	0.53	0.345	(0.621)	0.310	0.034
105	8.75	0.53	0.345	(0.618)	0.310	0.034
106	8.83	0.57	0.367	(0.615)	0.330	0.037
107	8.92	0.57	0.367	(0.612)	0.330	0.037
108	9.00	0.57	0.367	(0.609)	0.330	0.037
109	9.08	0.63	0.410	(0.606)	0.369	0.041
110	9.17	0.63	0.410	(0.603)	0.369	0.041
111	9.25	0.63	0.410	(0.601)	0.369	0.041
112	9.33	0.67	0.431	(0.598)	0.388	0.043
113	9.42	0.67	0.431	(0.595)	0.388	0.043
114	9.50	0.67	0.431	(0.592)	0.388	0.043
115	9.58	0.70	0.453	(0.589)	0.407	0.045
116	9.67	0.70	0.453	(0.586)	0.407	0.045
117	9.75	0.70	0.453	(0.583)	0.407	0.045
118	9.83	0.73	0.474	(0.581)	0.427	0.047
119	9.92	0.73	0.474	(0.578)	0.427	0.047
120	10.00	0.73	0.474	(0.575)	0.427	0.047
121	10.08	0.50	0.323	(0.572)	0.291	0.032
122	10.17	0.50	0.323	(0.570)	0.291	0.032
123	10.25	0.50	0.323	(0.567)	0.291	0.032
124	10.33	0.50	0.323	(0.564)	0.291	0.032
125	10.42	0.50	0.323	(0.561)	0.291	0.032
126	10.50	0.50	0.323	(0.559)	0.291	0.032
127	10.58	0.67	0.431	(0.556)	0.388	0.043

128	10.67	0.67	0.431	(0.553)	0.388	0.043
129	10.75	0.67	0.431	(0.550)	0.388	0.043
130	10.83	0.67	0.431	(0.548)	0.388	0.043
131	10.92	0.67	0.431	(0.545)	0.388	0.043
132	11.00	0.67	0.431	(0.542)	0.388	0.043
133	11.08	0.63	0.410	(0.540)	0.369	0.041
134	11.17	0.63	0.410	(0.537)	0.369	0.041
135	11.25	0.63	0.410	(0.534)	0.369	0.041
136	11.33	0.63	0.410	(0.532)	0.369	0.041
137	11.42	0.63	0.410	(0.529)	0.369	0.041
138	11.50	0.63	0.410	(0.526)	0.369	0.041
139	11.58	0.57	0.367	(0.524)	0.330	0.037
140	11.67	0.57	0.367	(0.521)	0.330	0.037
141	11.75	0.57	0.367	(0.519)	0.330	0.037
142	11.83	0.60	0.388	(0.516)	0.349	0.039
143	11.92	0.60	0.388	(0.513)	0.349	0.039
144	12.00	0.60	0.388	(0.511)	0.349	0.039
145	12.08	0.83	0.539	(0.508)	0.485	0.054
146	12.17	0.83	0.539	(0.506)	0.485	0.054
147	12.25	0.83	0.539	(0.503)	0.485	0.054
148	12.33	0.87	0.561	0.501	(0.505)	0.060
149	12.42	0.87	0.561	0.498	(0.505)	0.062
150	12.50	0.87	0.561	0.496	(0.505)	0.065
151	12.58	0.93	0.604	0.493	(0.543)	0.110
152	12.67	0.93	0.604	0.491	(0.543)	0.113
153	12.75	0.93	0.604	0.488	(0.543)	0.115
154	12.83	0.97	0.625	0.486	(0.563)	0.139
155	12.92	0.97	0.625	0.483	(0.563)	0.142
156	13.00	0.97	0.625	0.481	(0.563)	0.144
157	13.08	1.13	0.733	0.478	(0.660)	0.255
158	13.17	1.13	0.733	0.476	(0.660)	0.257
159	13.25	1.13	0.733	0.474	(0.660)	0.259
160	13.33	1.13	0.733	0.471	(0.660)	0.262
161	13.42	1.13	0.733	0.469	(0.660)	0.264
162	13.50	1.13	0.733	0.466	(0.660)	0.267
163	13.58	0.77	0.496	(0.464)	0.446	0.050
164	13.67	0.77	0.496	(0.462)	0.446	0.050
165	13.75	0.77	0.496	(0.459)	0.446	0.050

166	13.83	0.77	0.496	(0.457)	0.446	0.050
167	13.92	0.77	0.496	(0.455)	0.446	0.050
168	14.00	0.77	0.496	(0.452)	0.446	0.050
169	14.08	0.90	0.582	0.450	(0.524)	0.132
170	14.17	0.90	0.582	0.448	(0.524)	0.134
171	14.25	0.90	0.582	0.445	(0.524)	0.137
172	14.33	0.87	0.561	0.443	(0.505)	0.117
173	14.42	0.87	0.561	0.441	(0.505)	0.120
174	14.50	0.87	0.561	0.439	(0.505)	0.122
175	14.58	0.87	0.561	0.436	(0.505)	0.124
176	14.67	0.87	0.561	0.434	(0.505)	0.126
177	14.75	0.87	0.561	0.432	(0.505)	0.129
178	14.83	0.83	0.539	0.430	(0.485)	0.109
179	14.92	0.83	0.539	0.428	(0.485)	0.111
180	15.00	0.83	0.539	0.425	(0.485)	0.114
181	15.08	0.80	0.517	0.423	(0.466)	0.094
182	15.17	0.80	0.517	0.421	(0.466)	0.096
183	15.25	0.80	0.517	0.419	(0.466)	0.099
184	15.33	0.77	0.496	0.417	(0.446)	0.079
185	15.42	0.77	0.496	0.415	(0.446)	0.081
186	15.50	0.77	0.496	0.412	(0.446)	0.083
187	15.58	0.63	0.410	(0.410)	0.369	0.041
188	15.67	0.63	0.410	(0.408)	0.369	0.041
189	15.75	0.63	0.410	(0.406)	0.369	0.041
190	15.83	0.63	0.410	(0.404)	0.369	0.041
191	15.92	0.63	0.410	(0.402)	0.369	0.041
192	16.00	0.63	0.410	(0.400)	0.369	0.041
193	16.08	0.13	0.086	(0.398)	0.078	0.009
194	16.17	0.13	0.086	(0.396)	0.078	0.009
195	16.25	0.13	0.086	(0.394)	0.078	0.009
196	16.33	0.13	0.086	(0.392)	0.078	0.009
197	16.42	0.13	0.086	(0.390)	0.078	0.009
198	16.50	0.13	0.086	(0.388)	0.078	0.009
199	16.58	0.10	0.065	(0.386)	0.058	0.006
200	16.67	0.10	0.065	(0.384)	0.058	0.006
201	16.75	0.10	0.065	(0.382)	0.058	0.006
202	16.83	0.10	0.065	(0.380)	0.058	0.006
203	16.92	0.10	0.065	(0.378)	0.058	0.006

204	17.00	0.10	0.065	(0.376)	0.058	0.006
205	17.08	0.17	0.108	(0.374)	0.097	0.011
206	17.17	0.17	0.108	(0.372)	0.097	0.011
207	17.25	0.17	0.108	(0.371)	0.097	0.011
208	17.33	0.17	0.108	(0.369)	0.097	0.011
209	17.42	0.17	0.108	(0.367)	0.097	0.011
210	17.50	0.17	0.108	(0.365)	0.097	0.011
211	17.58	0.17	0.108	(0.363)	0.097	0.011
212	17.67	0.17	0.108	(0.361)	0.097	0.011
213	17.75	0.17	0.108	(0.360)	0.097	0.011
214	17.83	0.13	0.086	(0.358)	0.078	0.009
215	17.92	0.13	0.086	(0.356)	0.078	0.009
216	18.00	0.13	0.086	(0.354)	0.078	0.009
217	18.08	0.13	0.086	(0.352)	0.078	0.009
218	18.17	0.13	0.086	(0.351)	0.078	0.009
219	18.25	0.13	0.086	(0.349)	0.078	0.009
220	18.33	0.13	0.086	(0.347)	0.078	0.009
221	18.42	0.13	0.086	(0.346)	0.078	0.009
222	18.50	0.13	0.086	(0.344)	0.078	0.009
223	18.58	0.10	0.065	(0.342)	0.058	0.006
224	18.67	0.10	0.065	(0.341)	0.058	0.006
225	18.75	0.10	0.065	(0.339)	0.058	0.006
226	18.83	0.07	0.043	(0.337)	0.039	0.004
227	18.92	0.07	0.043	(0.336)	0.039	0.004
228	19.00	0.07	0.043	(0.334)	0.039	0.004
229	19.08	0.10	0.065	(0.333)	0.058	0.006
230	19.17	0.10	0.065	(0.331)	0.058	0.006
231	19.25	0.10	0.065	(0.329)	0.058	0.006
232	19.33	0.13	0.086	(0.328)	0.078	0.009
233	19.42	0.13	0.086	(0.326)	0.078	0.009
234	19.50	0.13	0.086	(0.325)	0.078	0.009
235	19.58	0.10	0.065	(0.323)	0.058	0.006
236	19.67	0.10	0.065	(0.322)	0.058	0.006
237	19.75	0.10	0.065	(0.321)	0.058	0.006
238	19.83	0.07	0.043	(0.319)	0.039	0.004
239	19.92	0.07	0.043	(0.318)	0.039	0.004
240	20.00	0.07	0.043	(0.316)	0.039	0.004
241	20.08	0.10	0.065	(0.315)	0.058	0.006

242	20.17	0.10	0.065	(0.313)	0.058	0.006
243	20.25	0.10	0.065	(0.312)	0.058	0.006
244	20.33	0.10	0.065	(0.311)	0.058	0.006
245	20.42	0.10	0.065	(0.309)	0.058	0.006
246	20.50	0.10	0.065	(0.308)	0.058	0.006
247	20.58	0.10	0.065	(0.307)	0.058	0.006
248	20.67	0.10	0.065	(0.306)	0.058	0.006
249	20.75	0.10	0.065	(0.304)	0.058	0.006
250	20.83	0.07	0.043	(0.303)	0.039	0.004
251	20.92	0.07	0.043	(0.302)	0.039	0.004
252	21.00	0.07	0.043	(0.301)	0.039	0.004
253	21.08	0.10	0.065	(0.299)	0.058	0.006
254	21.17	0.10	0.065	(0.298)	0.058	0.006
255	21.25	0.10	0.065	(0.297)	0.058	0.006
256	21.33	0.07	0.043	(0.296)	0.039	0.004
257	21.42	0.07	0.043	(0.295)	0.039	0.004
258	21.50	0.07	0.043	(0.294)	0.039	0.004
259	21.58	0.10	0.065	(0.293)	0.058	0.006
260	21.67	0.10	0.065	(0.292)	0.058	0.006
261	21.75	0.10	0.065	(0.291)	0.058	0.006
262	21.83	0.07	0.043	(0.290)	0.039	0.004
263	21.92	0.07	0.043	(0.289)	0.039	0.004
264	22.00	0.07	0.043	(0.288)	0.039	0.004
265	22.08	0.10	0.065	(0.287)	0.058	0.006
266	22.17	0.10	0.065	(0.286)	0.058	0.006
267	22.25	0.10	0.065	(0.285)	0.058	0.006
268	22.33	0.07	0.043	(0.284)	0.039	0.004
269	22.42	0.07	0.043	(0.283)	0.039	0.004
270	22.50	0.07	0.043	(0.282)	0.039	0.004
271	22.58	0.07	0.043	(0.281)	0.039	0.004
272	22.67	0.07	0.043	(0.281)	0.039	0.004
273	22.75	0.07	0.043	(0.280)	0.039	0.004
274	22.83	0.07	0.043	(0.279)	0.039	0.004
275	22.92	0.07	0.043	(0.278)	0.039	0.004
276	23.00	0.07	0.043	(0.278)	0.039	0.004
277	23.08	0.07	0.043	(0.277)	0.039	0.004
278	23.17	0.07	0.043	(0.276)	0.039	0.004
279	23.25	0.07	0.043	(0.276)	0.039	0.004

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280  23.33     0.07      0.043       (  0.275)       0.039        0.004
281  23.42     0.07      0.043       (  0.275)       0.039        0.004
282  23.50     0.07      0.043       (  0.274)       0.039        0.004
283  23.58     0.07      0.043       (  0.274)       0.039        0.004
284  23.67     0.07      0.043       (  0.273)       0.039        0.004
285  23.75     0.07      0.043       (  0.273)       0.039        0.004
286  23.83     0.07      0.043       (  0.273)       0.039        0.004
287  23.92     0.07      0.043       (  0.272)       0.039        0.004
288  24.00     0.07      0.043       (  0.272)       0.039        0.004
           (Loss Rate Not Used)
    Sum =     100.0                                   Sum =      9.0
     Flood volume = Effective rainfall      0.75(In)
      times area       0.8(Ac.)/[(In)/(Ft.)] =       0.0(Ac.Ft)
     Total soil loss =      4.64(In)
     Total soil loss =     0.290(Ac.Ft)
     Total rainfall =      5.39(In)
     Flood volume =        2050.6 Cubic Feet
     Total soil loss =       12623.6 Cubic Feet
     ---------------------------------------------------------------------
      Peak flow rate of this hydrograph =      0.202(CFS)
     ---------------------------------------------------------------------
     +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                         24 - H O U R    S T O R M
                    R u n o f f      H y d r o g r a p h
     ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

     ---------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
 ---------------------------------------------------------------------
   0+ 5       0.0000      0.00  Q         |         |         |         |
   0+10       0.0000      0.00  Q         |         |         |         |
   0+15       0.0001      0.00  Q         |         |         |         |
   0+20       0.0001      0.00  Q         |         |         |         |
   0+25       0.0001      0.00  Q         |         |         |         |
   0+30       0.0002      0.00  Q         |         |         |         |
   0+35       0.0002      0.00  Q         |         |         |         |
   0+40       0.0002      0.00  Q         |         |         |         |
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0+45	0.0003	0.00	Q				
0+50	0.0003	0.01	Q				
0+55	0.0004	0.01	Q				
1+ 0	0.0004	0.01	Q				
1+ 5	0.0004	0.00	Q				
1+10	0.0005	0.00	Q				
1+15	0.0005	0.00	Q				
1+20	0.0005	0.00	Q				
1+25	0.0006	0.00	Q				
1+30	0.0006	0.00	Q				
1+35	0.0006	0.00	Q				
1+40	0.0007	0.00	Q				
1+45	0.0007	0.00	Q				
1+50	0.0008	0.01	Q				
1+55	0.0008	0.01	Q				
2+ 0	0.0008	0.01	Q				
2+ 5	0.0009	0.01	Q				
2+10	0.0009	0.01	Q				
2+15	0.0010	0.01	Q				
2+20	0.0010	0.01	Q				
2+25	0.0011	0.01	Q				
2+30	0.0011	0.01	Q				
2+35	0.0012	0.01	Q				
2+40	0.0012	0.01	QV				
2+45	0.0013	0.01	QV				
2+50	0.0013	0.01	QV				
2+55	0.0014	0.01	QV				
3+ 0	0.0014	0.01	QV				
3+ 5	0.0015	0.01	QV				
3+10	0.0016	0.01	QV				
3+15	0.0016	0.01	QV				
3+20	0.0017	0.01	QV				
3+25	0.0017	0.01	QV				
3+30	0.0018	0.01	QV				
3+35	0.0018	0.01	QV				
3+40	0.0019	0.01	QV				
3+45	0.0020	0.01	QV				
3+50	0.0020	0.01	QV				

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3+55       0.0021      0.01  QV        |          |          |          |
4+ 0       0.0022      0.01  QV        |          |          |          |
4+ 5       0.0022      0.01  QV        |          |          |          |
4+10       0.0023      0.01  QV        |          |          |          |
4+15       0.0024      0.01  Q V       |          |          |          |
4+20       0.0024      0.01  Q V       |          |          |          |
4+25       0.0025      0.01  Q V       |          |          |          |
4+30       0.0026      0.01  Q V       |          |          |          |
4+35       0.0027      0.01  Q V       |          |          |          |
4+40       0.0028      0.01  Q V       |          |          |          |
4+45       0.0028      0.01  Q V       |          |          |          |
4+50       0.0029      0.01  Q V       |          |          |          |
4+55       0.0030      0.01  Q V       |          |          |          |
5+ 0       0.0031      0.01  Q V       |          |          |          |
5+ 5       0.0032      0.01  Q V       |          |          |          |
5+10       0.0032      0.01  Q V       |          |          |          |
5+15       0.0033      0.01  Q V       |          |          |          |
5+20       0.0034      0.01  Q V       |          |          |          |
5+25       0.0035      0.01  Q V       |          |          |          |
5+30       0.0035      0.01  Q  V      |          |          |          |
5+35       0.0036      0.01  Q  V      |          |          |          |
5+40       0.0037      0.01  Q  V      |          |          |          |
5+45       0.0038      0.01  Q  V      |          |          |          |
5+50       0.0039      0.01  Q  V      |          |          |          |
5+55       0.0040      0.01  Q  V      |          |          |          |
6+ 0       0.0041      0.01  Q  V      |          |          |          |
6+ 5       0.0042      0.01  Q  V      |          |          |          |
6+10       0.0043      0.01  Q  V      |          |          |          |
6+15       0.0044      0.01  Q  V      |          |          |          |
6+20       0.0045      0.01  Q  V      |          |          |          |
6+25       0.0046      0.01  Q  V      |          |          |          |
6+30       0.0047      0.01  Q  V      |          |          |          |
6+35       0.0048      0.02  Q   V     |          |          |          |
6+40       0.0049      0.02  Q   V     |          |          |          |
6+45       0.0050      0.02  Q   V     |          |          |          |
6+50       0.0051      0.02  Q   V     |          |          |          |
6+55       0.0052      0.02  Q   V     |          |          |          |
7+ 0       0.0054      0.02  Q   V     |          |          |          |
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7+ 5	0.0055	0.02	Q	V	|	|	|	|
7+10	0.0056	0.02	Q	V	|	|	|	|
7+15	0.0057	0.02	Q	V	|	|	|	|
7+20	0.0058	0.02	Q	V	|	|	|	|
7+25	0.0059	0.02	Q	V	|	|	|	|
7+30	0.0061	0.02	Q	V	|	|	|	|
7+35	0.0062	0.02	Q	V	|	|	|	|
7+40	0.0063	0.02	Q	V	|	|	|	|
7+45	0.0065	0.02	Q	V	|	|	|	|
7+50	0.0066	0.02	Q	V	|	|	|	|
7+55	0.0068	0.02	Q	V	|	|	|	|
8+ 0	0.0069	0.02	Q	V	|	|	|	|
8+ 5	0.0071	0.02	Q	V	|	|	|	|
8+10	0.0072	0.02	Q	V	|	|	|	|
8+15	0.0074	0.02	Q	V	|	|	|	|
8+20	0.0076	0.02	Q	V	|	|	|	|
8+25	0.0077	0.02	Q	V	|	|	|	|
8+30	0.0079	0.02	Q	V	|	|	|	|
8+35	0.0081	0.03	Q	V	|	|	|	|
8+40	0.0083	0.03	Q	V	|	|	|	|
8+45	0.0085	0.03	Q	V	|	|	|	|
8+50	0.0086	0.03	Q	V	|	|	|	|
8+55	0.0088	0.03	Q	V	|	|	|	|
9+ 0	0.0090	0.03	Q	V	|	|	|	|
9+ 5	0.0092	0.03	Q	V	|	|	|	|
9+10	0.0095	0.03	Q	V	|	|	|	|
9+15	0.0097	0.03	Q	V	|	|	|	|
9+20	0.0099	0.03	Q	V	|	|	|	|
9+25	0.0101	0.03	Q	V	|	|	|	|
9+30	0.0103	0.03	Q	V	|	|	|	|
9+35	0.0106	0.03	Q	V	|	|	|	|
9+40	0.0108	0.03	Q	V	|	|	|	|
9+45	0.0110	0.03	Q	V	|	|	|	|
9+50	0.0113	0.04	Q	V	|	|	|	|
9+55	0.0115	0.04	Q	V	|	|	|	|
10+ 0	0.0118	0.04	Q	V	|	|	|	|
10+ 5	0.0120	0.02	Q	V	|	|	|	|
10+10	0.0121	0.02	Q	V	|	|	|	|

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10+15       0.0123      0.02  Q          V          |          |          |
10+20       0.0125      0.02  Q          V          |          |          |
10+25       0.0126      0.02  Q          V          |          |          |
10+30       0.0128      0.02  Q          V          |          |          |
10+35       0.0130      0.03  Q          |V         |          |          |
10+40       0.0133      0.03  Q          |V         |          |          |
10+45       0.0135      0.03  Q          |V         |          |          |
10+50       0.0137      0.03  Q          |V         |          |          |
10+55       0.0139      0.03  Q          |V         |          |          |
11+ 0       0.0141      0.03  Q          | V        |          |          |
11+ 5       0.0144      0.03  Q          | V        |          |          |
11+10       0.0146      0.03  Q          | V        |          |          |
11+15       0.0148      0.03  Q          | V        |          |          |
11+20       0.0150      0.03  Q          | V        |          |          |
11+25       0.0152      0.03  Q          | V        |          |          |
11+30       0.0154      0.03  Q          |  V       |          |          |
11+35       0.0156      0.03  Q          |  V       |          |          |
11+40       0.0158      0.03  Q          |  V       |          |          |
11+45       0.0160      0.03  Q          |  V       |          |          |
11+50       0.0162      0.03  Q          |  V       |          |          |
11+55       0.0164      0.03  Q          |  V       |          |          |
12+ 0       0.0166      0.03  Q          |   V      |          |          |
12+ 5       0.0169      0.04  Q          |   V      |          |          |
12+10       0.0172      0.04  Q          |   V      |          |          |
12+15       0.0175      0.04  Q          |   V      |          |          |
12+20       0.0178      0.05  Q          |    V     |          |          |
12+25       0.0181      0.05  Q          |    V     |          |          |
12+30       0.0184      0.05  Q          |    V     |          |          |
12+35       0.0190      0.08  Q          |     V    |          |          |
12+40       0.0196      0.09  Q          |     V    |          |          |
12+45       0.0202      0.09  Q          |      V   |          |          |
12+50       0.0209      0.11  Q          |      V   |          |          |
12+55       0.0217      0.11  Q          |       V  |          |          |
13+ 0       0.0224      0.11  Q          |        V|          |          |
13+ 5       0.0237      0.19  Q          |         V          |          |
13+10       0.0251      0.19  Q          |          |V        |          |
13+15       0.0264      0.20  Q          |          | V       |          |
13+20       0.0278      0.20  Q          |          |  V      |          |
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13+25	0.0292	0.20	Q	|	|	V |	|	|
13+30	0.0305	0.20	Q	|	|	V |	|	|
13+35	0.0308	0.04	Q	|	|	V |	|	|
13+40	0.0311	0.04	Q	|	|	V |	|	|
13+45	0.0313	0.04	Q	|	|	V |	|	|
13+50	0.0316	0.04	Q	|	|	V |	|	|
13+55	0.0318	0.04	Q	|	|	V |	|	|
14+ 0	0.0321	0.04	Q	|	|	V |	|	|
14+ 5	0.0328	0.10	Q	|	|	V |	|	|
14+10	0.0335	0.10	Q	|	|	V |	|	|
14+15	0.0342	0.10	Q	|	|	V |	|	|
14+20	0.0348	0.09	Q	|	|	V |	|	|
14+25	0.0354	0.09	Q	|	|	V |	|	|
14+30	0.0361	0.09	Q	|	|	V |	|	|
14+35	0.0367	0.09	Q	|	|	V |	|	|
14+40	0.0374	0.10	Q	|	|	V |	|	|
14+45	0.0380	0.10	Q	|	|	V |	|	|
14+50	0.0386	0.08	Q	|	|	V |	|	|
14+55	0.0392	0.08	Q	|	|	V |	|	|
15+ 0	0.0398	0.09	Q	|	|	V |	|	|
15+ 5	0.0403	0.07	Q	|	|	V |	|	|
15+10	0.0408	0.07	Q	|	|	V |	|	|
15+15	0.0413	0.07	Q	|	|	V |	|	|
15+20	0.0417	0.06	Q	|	|	V |	|	|
15+25	0.0421	0.06	Q	|	|	V |	|	|
15+30	0.0426	0.06	Q	|	|	V |	|	|
15+35	0.0428	0.03	Q	|	|	V |	|	|
15+40	0.0430	0.03	Q	|	|	V |	|	|
15+45	0.0432	0.03	Q	|	|	V |	|	|
15+50	0.0434	0.03	Q	|	|	V |	|	|
15+55	0.0436	0.03	Q	|	|	V |	|	|
16+ 0	0.0438	0.03	Q	|	|	V |	|	|
16+ 5	0.0439	0.01	Q	|	|	V |	|	|
16+10	0.0439	0.01	Q	|	|	V |	|	|
16+15	0.0440	0.01	Q	|	|	V |	|	|
16+20	0.0440	0.01	Q	|	|	V |	|	|
16+25	0.0441	0.01	Q	|	|	V |	|	|
16+30	0.0441	0.01	Q	|	|	V |	|	|

16+35	0.0441	0.00	Q	|	|	|	V |
16+40	0.0442	0.00	Q	|	|	|	V |
16+45	0.0442	0.00	Q	|	|	|	V |
16+50	0.0442	0.00	Q	|	|	|	V |
16+55	0.0443	0.00	Q	|	|	|	V |
17+ 0	0.0443	0.00	Q	|	|	|	V |
17+ 5	0.0444	0.01	Q	|	|	|	V |
17+10	0.0444	0.01	Q	|	|	|	V |
17+15	0.0445	0.01	Q	|	|	|	V |
17+20	0.0445	0.01	Q	|	|	|	V |
17+25	0.0446	0.01	Q	|	|	|	V |
17+30	0.0447	0.01	Q	|	|	|	V |
17+35	0.0447	0.01	Q	|	|	|	V |
17+40	0.0448	0.01	Q	|	|	|	V |
17+45	0.0448	0.01	Q	|	|	|	V |
17+50	0.0449	0.01	Q	|	|	|	V |
17+55	0.0449	0.01	Q	|	|	|	V |
18+ 0	0.0450	0.01	Q	|	|	|	V |
18+ 5	0.0450	0.01	Q	|	|	|	V |
18+10	0.0450	0.01	Q	|	|	|	V |
18+15	0.0451	0.01	Q	|	|	|	V |
18+20	0.0451	0.01	Q	|	|	|	V |
18+25	0.0452	0.01	Q	|	|	|	V |
18+30	0.0452	0.01	Q	|	|	|	V |
18+35	0.0453	0.00	Q	|	|	|	V |
18+40	0.0453	0.00	Q	|	|	|	V |
18+45	0.0453	0.00	Q	|	|	|	V |
18+50	0.0453	0.00	Q	|	|	|	V |
18+55	0.0454	0.00	Q	|	|	|	V |
19+ 0	0.0454	0.00	Q	|	|	|	V |
19+ 5	0.0454	0.00	Q	|	|	|	V |
19+10	0.0455	0.00	Q	|	|	|	V |
19+15	0.0455	0.00	Q	|	|	|	V |
19+20	0.0455	0.01	Q	|	|	|	V |
19+25	0.0456	0.01	Q	|	|	|	V |
19+30	0.0456	0.01	Q	|	|	|	V |
19+35	0.0457	0.00	Q	|	|	|	V |
19+40	0.0457	0.00	Q	|	|	|	V |

19+45	0.0457	0.00	Q	|	|	|	V |
19+50	0.0458	0.00	Q	|	|	|	V |
19+55	0.0458	0.00	Q	|	|	|	V |
20+ 0	0.0458	0.00	Q	|	|	|	V |
20+ 5	0.0458	0.00	Q	|	|	|	V |
20+10	0.0459	0.00	Q	|	|	|	V |
20+15	0.0459	0.00	Q	|	|	|	V |
20+20	0.0459	0.00	Q	|	|	|	V|
20+25	0.0460	0.00	Q	|	|	|	V|
20+30	0.0460	0.00	Q	|	|	|	V|
20+35	0.0460	0.00	Q	|	|	|	V|
20+40	0.0461	0.00	Q	|	|	|	V|
20+45	0.0461	0.00	Q	|	|	|	V|
20+50	0.0461	0.00	Q	|	|	|	V|
20+55	0.0461	0.00	Q	|	|	|	V|
21+ 0	0.0462	0.00	Q	|	|	|	V|
21+ 5	0.0462	0.00	Q	|	|	|	V|
21+10	0.0462	0.00	Q	|	|	|	V|
21+15	0.0463	0.00	Q	|	|	|	V|
21+20	0.0463	0.00	Q	|	|	|	V|
21+25	0.0463	0.00	Q	|	|	|	V|
21+30	0.0463	0.00	Q	|	|	|	V|
21+35	0.0464	0.00	Q	|	|	|	V|
21+40	0.0464	0.00	Q	|	|	|	V|
21+45	0.0464	0.00	Q	|	|	|	V|
21+50	0.0465	0.00	Q	|	|	|	V|
21+55	0.0465	0.00	Q	|	|	|	V|
22+ 0	0.0465	0.00	Q	|	|	|	V|
22+ 5	0.0465	0.00	Q	|	|	|	V|
22+10	0.0466	0.00	Q	|	|	|	V|
22+15	0.0466	0.00	Q	|	|	|	V|
22+20	0.0466	0.00	Q	|	|	|	V|
22+25	0.0466	0.00	Q	|	|	|	V|
22+30	0.0467	0.00	Q	|	|	|	V|
22+35	0.0467	0.00	Q	|	|	|	V|
22+40	0.0467	0.00	Q	|	|	|	V|
22+45	0.0467	0.00	Q	|	|	|	V|
22+50	0.0468	0.00	Q	|	|	|	V|

```
   22+55       0.0468      0.00  Q          |          |          |         V|
   23+ 0       0.0468      0.00  Q          |          |          |         V|
   23+ 5       0.0468      0.00  Q          |          |          |         V|
   23+10       0.0469      0.00  Q          |          |          |         V|
   23+15       0.0469      0.00  Q          |          |          |         V|
   23+20       0.0469      0.00  Q          |          |          |         V|
   23+25       0.0469      0.00  Q          |          |          |         V|
   23+30       0.0469      0.00  Q          |          |          |         V|
   23+35       0.0470      0.00  Q          |          |          |         V|
   23+40       0.0470      0.00  Q          |          |          |         V|
   23+45       0.0470      0.00  Q          |          |          |         V|
   23+50       0.0470      0.00  Q          |          |          |         V|
   23+55       0.0471      0.00  Q          |          |          |         V|
   24+ 0       0.0471      0.00  Q          |          |          |         V|
-------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 16- 100 YR, 1-hr

Drainage Area = 1.63(Ac.) = 0.003 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.63(Ac.) = 0.003 Sq. Mi.
Length along longest watercourse = 180.00(Ft.)
Length along longest watercourse measured to centroid = 90.00(Ft.)
Length along longest watercourse = 0.034 Mi.
Length along longest watercourse measured to centroid = 0.017 Mi.
Difference in elevation = 1.30(Ft.)
Slope along watercourse = 38.1333 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.011 Hr.
Lag time =     0.64 Min.
25% of lag time =     0.16 Min.
40% of lag time =     0.25 Min.
Unit time =     5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.63              0.51                  0.84

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.63              1.61                  2.62

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.514(In)
Area Averaged 100-Year Rainfall =    1.610(In)

Point rain (area averaged) =    1.610(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    1.610(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     1.630           69.00          0.200
 Total Area Entered =      1.63(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306       1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

Slope of intensity-duration curve for a 1 hour storm =0.5500

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	784.423	80.805	1.327
2	0.167	1568.846	19.195	0.315
		Sum = 100.000	Sum=	1.643

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max		Low	Effective (In/Hr)
1	0.08	3.30	0.638	0.306	(	0.574)	0.332
2	0.17	4.20	0.811	0.306	(	0.730)	0.506
3	0.25	4.40	0.850	0.306	(	0.765)	0.544
4	0.33	4.80	0.927	0.306	(	0	

U n i t H y d r o g r a p h A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 16- 100 YR, 3-hr

Drainage Area = 1.63(Ac.) = 0.003 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.63(Ac.) = 0.003 Sq. Mi.
Length along longest watercourse = 180.00(Ft.)
Length along longest watercourse measured to centroid = 90.00(Ft.)
Length along longest watercourse = 0.034 Mi.
Length along longest watercourse measured to centroid = 0.017 Mi.
Difference in elevation = 1.30(Ft.)
Slope along watercourse = 38.1333 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.011 Hr.
Lag time =     0.64 Min.
25% of lag time =     0.16 Min.
40% of lag time =     0.25 Min.
Unit time =     5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.63              0.86                  1.41

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.63              2.25                  3.67

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.864(In)
Area Averaged 100-Year Rainfall =    2.250(In)

Point rain (area averaged) =    2.250(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.250(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     1.630           69.00          0.200
 Total Area Entered =      1.63(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306       1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	784.423	80.805	1.327
2	0.167	1568.846	19.195	0.315
			Sum = 100.000 Sum=	1.643

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.351	0.306	(0.316)	0.045
2	0.17	1.30	0.351	0.306	(0.316)	0.045
3	0.25	1.10	0.297	(0.306)	0.267	0.030
4	0.33	1.50	0.405	0.306	(0.364)	0.099
5	0.42	1.50	0.405	0.306	(0.364)	0.099
6	0.50	1.80	0.486	0.306	(0.437)	0.180
7	0.58	1.50	0.405	0.306	(0.364)	0.099
8	0.67	1.80	0.486	0.306	(0.437)	0.180
9	0.75	1.80	0.486	0.306	(0.437)	0.180
10	0.83	1.50	0.405	0.306	(0.364)	0.099
11	0.92	1.60	0.432	0.306	(0.389)	0.126
12	1.00	1.80	0.486	0.306	(0.437)	0.180

```
13   1.08     2.20      0.594          0.306    (  0.535)         0.288
14   1.17     2.20      0.594          0.306    (  0.535)         0.288
15   1.25     2.20      0.594          0.306    (  0.535)         0.288
16   1.33     2.00      0.540          0.306    (  0.486)         0.234
17   1.42     2.60      0.702          0.306    (  0.632)         0.396
18   1.50     2.70      0.729          0.306    (  0.656)         0.423
19   1.58     2.40      0.648          0.306    (  0.583)         0.342
20   1.67     2.70      0.729          0.306    (  0.656)         0.423
21   1.75     3.30      0.891          0.306    (  0.802)         0.585
22   1.83     3.10      0.837          0.306    (  0.753)         0.531
23   1.92     2.90      0.783          0.306    (  0.705)         0.477
24   2.00     3.00      0.810          0.306    (  0.729)         0.504
25   2.08     3.10      0.837          0.306    (  0.753)         0.531
26   2.17     4.20      1.134          0.306    (  1.021)         0.828
27   2.25     5.00      1.350          0.306    (  1.215)         1.044
28   2.33     3.50      0.945          0.306    (  0.850)         0.639
29   2.42     6.80      1.836          0.306    (  1.652)         1.530
30   2.50     7.30      1.971          0.306    (  1.774)         1.665
31   2.58     8.20      2.214          0.306    (  1.993)         1.908
32   2.67     5.90      1.593          0.306    (  1.434)         1.287
33   2.75     2.00      0.540          0.306    (  0.486)         0.234
34   2.83     1.80      0.486          0.306    (  0.437)         0.180
35   2.92     1.80      0.486          0.306    (  0.437)         0.180
36   3.00     0.60      0.162       (  0.306)       0.146         0.016
          (Loss Rate Not Used)
   Sum =     100.0                                    Sum =    16.2
    Flood volume = Effective rainfall      1.35(In)
     times area       1.6(Ac.)/[(In)/(Ft.)] =       0.2(Ac.Ft)
    Total soil loss =      0.90(In)
    Total soil loss =     0.122(Ac.Ft)
    Total rainfall =      2.25(In)
    Flood volume =        7984.4 Cubic Feet
    Total soil loss =        5328.5 Cubic Feet
    ---------------------------------------------------------------------
     Peak flow rate of this hydrograph =      3.060(CFS)
    ---------------------------------------------------------------------
    +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        3 - H O U R    S T O R M
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R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0004	0.06	Q				
0+10	0.0009	0.07	Q				
0+15	0.0013	0.05	Q				
0+20	0.0023	0.14	Q				
0+25	0.0034	0.16	Q				
0+30	0.0053	0.27	|Q				
0+35	0.0066	0.19	QV				
0+40	0.0084	0.27	|Q				
0+45	0.0105	0.30	|QV				
0+50	0.0118	0.19	Q V				
0+55							

U n i t H y d r o g r a p h A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 16- 100 YR, 6-hr

Drainage Area = 1.63(Ac.) = 0.003 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.63(Ac.) = 0.003 Sq. Mi.
Length along longest watercourse = 180.00(Ft.)
Length along longest watercourse measured to centroid = 90.00(Ft.)
Length along longest watercourse = 0.034 Mi.
Length along longest watercourse measured to centroid = 0.017 Mi.
Difference in elevation = 1.30(Ft.)
Slope along watercourse = 38.1333 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.011 Hr.
Lag time =     0.64 Min.
25% of lag time =     0.16 Min.
40% of lag time =     0.25 Min.
Unit time =     5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.63             1.20                 1.96

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.63             2.99                 4.87

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.200(In)
Area Averaged 100-Year Rainfall =    2.990(In)

Point rain (area averaged) =    2.990(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.990(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     1.630           69.00          0.200
 Total Area Entered =      1.63(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306       1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	784.423	80.805	1.327
2	0.167	1568.846	19.195	0.315
		Sum = 100.000	Sum=	1.643

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max		Low	Effective (In/Hr)
1	0.08	0.50	0.179	(0.306)	0.161	0.018
2	0.17	0.60	0.215	(0.306)	0.194	0.022
3	0.25	0.60	0.215	(0.306)	0.194	0.022
4	0.33	0.60	0.215	(0.306)	0.194	0.022
5	0.42	0.60	0.215	(0.306)	0.194	0.022
6	0.50	0.70	0.251	(0.306)	0.226	0.025
7	0.58	0.70	0.251	(0.306)	0.226	0.025
8	0.67	0.70	0.251	(0.306)	0.226	0.025
9	0.75	0.70	0.251	(0.306)	0.226	0.025
10	0.83	0.70	0.251	(0.306)	0.226	0.025
11	0.92	0.70	0.251	(0.306)	0.226	0.025
12	1.00	0.80	0.287	(0.306)	0.258	0.029

13	1.08	0.80	0.287	(0.306)	0.258	0.029
14	1.17	0.80	0.287	(0.306)	0.258	0.029
15	1.25	0.80	0.287	(0.306)	0.258	0.029
16	1.33	0.80	0.287	(0.306)	0.258	0.029
17	1.42	0.80	0.287	(0.306)	0.258	0.029
18	1.50	0.80	0.287	(0.306)	0.258	0.029
19	1.58	0.80	0.287	(0.306)	0.258	0.029
20	1.67	0.80	0.287	(0.306)	0.258	0.029
21	1.75	0.80	0.287	(0.306)	0.258	0.029
22	1.83	0.80	0.287	(0.306)	0.258	0.029
23	1.92	0.80	0.287	(0.306)	0.258	0.029
24	2.00	0.90	0.323	(0.306)	0.291	0.032
25	2.08	0.80	0.287	(0.306)	0.258	0.029
26	2.17	0.90	0.323	(0.306)	0.291	0.032
27	2.25	0.90	0.323	(0.306)	0.291	0.032
28	2.33	0.90	0.323	(0.306)	0.291	0.032
29	2.42	0.90	0.323	(0.306)	0.291	0.032
30	2.50	0.90	0.323	(0.306)	0.291	0.032
31	2.58	0.90	0.323	(0.306)	0.291	0.032
32	2.67	0.90	0.323	(0.306)	0.291	0.032
33	2.75	1.00	0.359	0.306	(0.323)	0.053
34	2.83	1.00	0.359	0.306	(0.323)	0.053
35	2.92	1.00	0.359	0.306	(0.323)	0.053
36	3.00	1.00	0.359	0.306	(0.323)	0.053
37	3.08	1.00	0.359	0.306	(0.323)	0.053
38	3.17	1.10	0.395	0.306	(0.355)	0.089
39	3.25	1.10	0.395	0.306	(0.355)	0.089
40	3.33	1.10	0.395	0.306	(0.355)	0.089
41	3.42	1.20	0.431	0.306	(0.388)	0.125
42	3.50	1.30	0.466	0.306	(0.420)	0.161
43	3.58	1.40	0.502	0.306	(0.452)	0.197
44	3.67	1.40	0.502	0.306	(0.452)	0.197
45	3.75	1.50	0.538	0.306	(0.484)	0.233
46	3.83	1.50	0.538	0.306	(0.484)	0.233
47	3.92	1.60	0.574	0.306	(0.517)	0.268
48	4.00	1.60	0.574	0.306	(0.517)	0.268
49	4.08	1.70	0.610	0.306	(0.549)	0.304
50	4.17	1.80	0.646	0.306	(0.581)	0.340

```
51   4.25     1.90      0.682          0.306    (  0.614)         0.376
52   4.33     2.00      0.718          0.306    (  0.646)         0.412
53   4.42     2.10      0.753          0.306    (  0.678)         0.448
54   4.50     2.10      0.753          0.306    (  0.678)         0.448
55   4.58     2.20      0.789          0.306    (  0.710)         0.484
56   4.67     2.30      0.825          0.306    (  0.743)         0.520
57   4.75     2.40      0.861          0.306    (  0.775)         0.555
58   4.83     2.40      0.861          0.306    (  0.775)         0.555
59   4.92     2.50      0.897          0.306    (  0.807)         0.591
60   5.00     2.60      0.933          0.306    (  0.840)         0.627
61   5.08     3.10      1.112          0.306    (  1.001)         0.807
62   5.17     3.60      1.292          0.306    (  1.163)         0.986
63   5.25     3.90      1.399          0.306    (  1.259)         1.094
64   5.33     4.20      1.507          0.306    (  1.356)         1.201
65   5.42     4.70      1.686          0.306    (  1.518)         1.381
66   5.50     5.60      2.009          0.306    (  1.808)         1.704
67   5.58     1.90      0.682          0.306    (  0.614)         0.376
68   5.67     0.90      0.323       (  0.306)       0.291         0.032
69   5.75     0.60      0.215       (  0.306)       0.194         0.022
70   5.83     0.50      0.179       (  0.306)       0.161         0.018
71   5.92     0.30      0.108       (  0.306)       0.097         0.011
72   6.00     0.20      0.072       (  0.306)       0.065         0.007
          (Loss Rate Not Used)
   Sum =     100.0                                    Sum =    16.4
    Flood volume = Effective rainfall      1.37(In)
     times area       1.6(Ac.)/[(In)/(Ft.)] =       0.2(Ac.Ft)
    Total soil loss =      1.62(In)
    Total soil loss =     0.221(Ac.Ft)
    Total rainfall =      2.99(In)
    Flood volume =        8085.0 Cubic Feet
    Total soil loss =        9606.4 Cubic Feet
    ---------------------------------------------------------------
     Peak flow rate of this hydrograph =      2.698(CFS)
    ---------------------------------------------------------------
    +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        6 - H O U R    S T O R M
                   R u n o f f      H y d r o g r a p h
    ---------------------------------------------------------------
```

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0002	0.02	Q				
0+10	0.0004	0.03	Q				
0+15	0.0006	0.04	Q				
0+20	0.0009	0.04	Q				
0+25	0.0011	0.04	Q				
0+30	0.0014	0.04	Q				
0+35	0.0017	0.04	Q				
0+40	0.0020	0.04	Q				
0+45	0.0023	0.04	Q				
0+50	0.0025	0.04	Q				
0+55	0.0028	0.04	Q				
1+ 0	0.0031	0.05	Q				
1+ 5	0.0035	0.05	Q				
1+10	0.0038	0.05	Q				
1+15	0.0041	0.05	Q				
1+20	0.0044	0.05	Q				
1+25	0.0048	0.05	QV				
1+30	0.0051	0.05	QV				
1+35	0.0054	0.05	QV				
1+40	0.0057	0.05	QV				
1+45	0.0061	0.05	QV				
1+50	0.0064	0.05	QV				
1+55	0.0067	0.05	QV				
2+ 0	0.0071	0.05	QV				
2+ 5	0.0074	0.05	QV				
2+10	0.0078	0.05	QV				
2+15	0.0081	0.05	QV				
2+20	0.0085	0.05	QV				
2+25	0.0089	0.05	QV				
2+30	0.0092	0.05	QV				

U n i t H y d r o g r a p h A n a l y s i s

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Study date 01/03/23 File: VOLT1624100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 16- 100 YR, 24-hr

Drainage Area = 1.63(Ac.) = 0.003 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.63(Ac.) = 0.003 Sq. Mi.
Length along longest watercourse = 180.00(Ft.)
Length along longest watercourse measured to centroid = 90.00(Ft.)
Length along longest watercourse = 0.034 Mi.
Length along longest watercourse measured to centroid = 0.017 Mi.
Difference in elevation = 1.30(Ft.)
Slope along watercourse = 38.1333 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.011 Hr.
Lag time =     0.64 Min.
25% of lag time =     0.16 Min.
40% of lag time =     0.25 Min.
Unit time =     5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.63             2.06                 3.36

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.63             5.39                 8.79

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    2.060(In)
Area Averaged 100-Year Rainfall =    5.390(In)

Point rain (area averaged) =    5.390(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    5.390(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     1.630           69.00          0.200
 Total Area Entered =      1.63(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306        1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	784.423	80.805	1.327
2	0.167	1568.846	19.195	0.315
		Sum = 100.000	Sum=	1.643

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.043	(0.542)	0.039	0.004
2	0.17	0.07	0.043	(0.540)	0.039	0.004
3	0.25	0.07	0.043	(0.538)	0.039	0.004
4	0.33	0.10	0.065	(0.536)	0.058	0.006
5	0.42	0.10	0.065	(0.534)	0.058	0.006
6	0.50	0.10	0.065	(0.531)	0.058	0.006
7	0.58	0.10	0.065	(0.529)	0.058	0.006
8	0.67	0.10	0.065	(0.527)	0.058	0.006
9	0.75	0.10	0.065	(0.525)	0.058	0.006
10	0.83	0.13	0.086	(0.523)	0.078	0.009
11	0.92	0.13	0.086	(0.521)	0.078	0.009
12	1.00	0.13	0.086	(0.519)	0.078	0.009

13	1.08	0.10	0.065	(0.517)	0.058	0.006
14	1.17	0.10	0.065	(0.515)	0.058	0.006
15	1.25	0.10	0.065	(0.513)	0.058	0.006
16	1.33	0.10	0.065	(0.511)	0.058	0.006
17	1.42	0.10	0.065	(0.509)	0.058	0.006
18	1.50	0.10	0.065	(0.507)	0.058	0.006
19	1.58	0.10	0.065	(0.505)	0.058	0.006
20	1.67	0.10	0.065	(0.503)	0.058	0.006
21	1.75	0.10	0.065	(0.501)	0.058	0.006
22	1.83	0.13	0.086	(0.499)	0.078	0.009
23	1.92	0.13	0.086	(0.497)	0.078	0.009
24	2.00	0.13	0.086	(0.495)	0.078	0.009
25	2.08	0.13	0.086	(0.493)	0.078	0.009
26	2.17	0.13	0.086	(0.491)	0.078	0.009
27	2.25	0.13	0.086	(0.489)	0.078	0.009
28	2.33	0.13	0.086	(0.487)	0.078	0.009
29	2.42	0.13	0.086	(0.485)	0.078	0.009
30	2.50	0.13	0.086	(0.483)	0.078	0.009
31	2.58	0.17	0.108	(0.481)	0.097	0.011
32	2.67	0.17	0.108	(0.479)	0.097	0.011
33	2.75	0.17	0.108	(0.477)	0.097	0.011
34	2.83	0.17	0.108	(0.475)	0.097	0.011
35	2.92	0.17	0.108	(0.473)	0.097	0.011
36	3.00	0.17	0.108	(0.471)	0.097	0.011
37	3.08	0.17	0.108	(0.469)	0.097	0.011
38	3.17	0.17	0.108	(0.467)	0.097	0.011
39	3.25	0.17	0.108	(0.465)	0.097	0.011
40	3.33	0.17	0.108	(0.463)	0.097	0.011
41	3.42	0.17	0.108	(0.461)	0.097	0.011
42	3.50	0.17	0.108	(0.459)	0.097	0.011
43	3.58	0.17	0.108	(0.457)	0.097	0.011
44	3.67	0.17	0.108	(0.456)	0.097	0.011
45	3.75	0.17	0.108	(0.454)	0.097	0.011
46	3.83	0.20	0.129	(0.452)	0.116	0.013
47	3.92	0.20	0.129	(0.450)	0.116	0.013
48	4.00	0.20	0.129	(0.448)	0.116	0.013
49	4.08	0.20	0.129	(0.446)	0.116	0.013
50	4.17	0.20	0.129	(0.444)	0.116	0.013

51	4.25	0.20	0.129	(0.442)	0.116	0.013
52	4.33	0.23	0.151	(0.440)	0.136	0.015
53	4.42	0.23	0.151	(0.438)	0.136	0.015
54	4.50	0.23	0.151	(0.437)	0.136	0.015
55	4.58	0.23	0.151	(0.435)	0.136	0.015
56	4.67	0.23	0.151	(0.433)	0.136	0.015
57	4.75	0.23	0.151	(0.431)	0.136	0.015
58	4.83	0.27	0.172	(0.429)	0.155	0.017
59	4.92	0.27	0.172	(0.427)	0.155	0.017
60	5.00	0.27	0.172	(0.425)	0.155	0.017
61	5.08	0.20	0.129	(0.424)	0.116	0.013
62	5.17	0.20	0.129	(0.422)	0.116	0.013
63	5.25	0.20	0.129	(0.420)	0.116	0.013
64	5.33	0.23	0.151	(0.418)	0.136	0.015
65	5.42	0.23	0.151	(0.416)	0.136	0.015
66	5.50	0.23	0.151	(0.414)	0.136	0.015
67	5.58	0.27	0.172	(0.413)	0.155	0.017
68	5.67	0.27	0.172	(0.411)	0.155	0.017
69	5.75	0.27	0.172	(0.409)	0.155	0.017
70	5.83	0.27	0.172	(0.407)	0.155	0.017
71	5.92	0.27	0.172	(0.405)	0.155	0.017
72	6.00	0.27	0.172	(0.404)	0.155	0.017
73	6.08	0.30	0.194	(0.402)	0.175	0.019
74	6.17	0.30	0.194	(0.400)	0.175	0.019
75	6.25	0.30	0.194	(0.398)	0.175	0.019
76	6.33	0.30	0.194	(0.396)	0.175	0.019
77	6.42	0.30	0.194	(0.395)	0.175	0.019
78	6.50	0.30	0.194	(0.393)	0.175	0.019
79	6.58	0.33	0.216	(0.391)	0.194	0.022
80	6.67	0.33	0.216	(0.389)	0.194	0.022
81	6.75	0.33	0.216	(0.388)	0.194	0.022
82	6.83	0.33	0.216	(0.386)	0.194	0.022
83	6.92	0.33	0.216	(0.384)	0.194	0.022
84	7.00	0.33	0.216	(0.382)	0.194	0.022
85	7.08	0.33	0.216	(0.381)	0.194	0.022
86	7.17	0.33	0.216	(0.379)	0.194	0.022
87	7.25	0.33	0.216	(0.377)	0.194	0.022
88	7.33	0.37	0.237	(0.375)	0.213	0.024

89	7.42	0.37	0.237	(0.374)	0.213	0.024
90	7.50	0.37	0.237	(0.372)	0.213	0.024
91	7.58	0.40	0.259	(0.370)	0.233	0.026
92	7.67	0.40	0.259	(0.369)	0.233	0.026
93	7.75	0.40	0.259	(0.367)	0.233	0.026
94	7.83	0.43	0.280	(0.365)	0.252	0.028
95	7.92	0.43	0.280	(0.363)	0.252	0.028
96	8.00	0.43	0.280	(0.362)	0.252	0.028
97	8.08	0.50	0.323	(0.360)	0.291	0.032
98	8.17	0.50	0.323	(0.358)	0.291	0.032
99	8.25	0.50	0.323	(0.357)	0.291	0.032
100	8.33	0.50	0.323	(0.355)	0.291	0.032
101	8.42	0.50	0.323	(0.353)	0.291	0.032
102	8.50	0.50	0.323	(0.352)	0.291	0.032
103	8.58	0.53	0.345	(0.350)	0.310	0.034
104	8.67	0.53	0.345	(0.348)	0.310	0.034
105	8.75	0.53	0.345	(0.347)	0.310	0.034
106	8.83	0.57	0.367	(0.345)	0.330	0.037
107	8.92	0.57	0.367	(0.344)	0.330	0.037
108	9.00	0.57	0.367	(0.342)	0.330	0.037
109	9.08	0.63	0.410	0.340	(0.369)	0.069
110	9.17	0.63	0.410	0.339	(0.369)	0.071
111	9.25	0.63	0.410	0.337	(0.369)	0.073
112	9.33	0.67	0.431	0.335	(0.388)	0.096
113	9.42	0.67	0.431	0.334	(0.388)	0.097
114	9.50	0.67	0.431	0.332	(0.388)	0.099
115	9.58	0.70	0.453	0.331	(0.407)	0.122
116	9.67	0.70	0.453	0.329	(0.407)	0.124
117	9.75	0.70	0.453	0.328	(0.407)	0.125
118	9.83	0.73	0.474	0.326	(0.427)	0.148
119	9.92	0.73	0.474	0.324	(0.427)	0.150
120	10.00	0.73	0.474	0.323	(0.427)	0.152
121	10.08	0.50	0.323	(0.321)	0.291	0.032
122	10.17	0.50	0.323	(0.320)	0.291	0.032
123	10.25	0.50	0.323	(0.318)	0.291	0.032
124	10.33	0.50	0.323	(0.317)	0.291	0.032
125	10.42	0.50	0.323	(0.315)	0.291	0.032
126	10.50	0.50	0.323	(0.314)	0.291	0.032

127	10.58	0.67	0.431	0.312	(	0.388)	0.119
128	10.67	0.67	0.431	0.310	(	0.388)	0.121
129	10.75	0.67	0.431	0.309	(	0.388)	0.122
130	10.83	0.67	0.431	0.307	(	0.388)	0.124
131	10.92	0.67	0.431	0.306	(	0.388)	0.125
132	11.00	0.67	0.431	0.304	(	0.388)	0.127
133	11.08	0.63	0.410	0.303	(	0.369)	0.107
134	11.17	0.63	0.410	0.301	(	0.369)	0.108
135	11.25	0.63	0.410	0.300	(	0.369)	0.110
136	11.33	0.63	0.410	0.298	(	0.369)	0.111
137	11.42	0.63	0.410	0.297	(	0.369)	0.113
138	11.50	0.63	0.410	0.296	(	0.369)	0.114
139	11.58	0.57	0.367	0.294	(	0.330)	0.072
140	11.67	0.57	0.367	0.293	(	0.330)	0.074
141	11.75	0.57	0.367	0.291	(	0.330)	0.075
142	11.83	0.60	0.388	0.290	(	0.349)	0.098
143	11.92	0.60	0.388	0.288	(	0.349)	0.100
144	12.00	0.60	0.388	0.287	(	0.349)	0.101
145	12.08	0.83	0.539	0.285	(	0.485)	0.254
146	12.17	0.83	0.539	0.284	(	0.485)	0.255
147	12.25	0.83	0.539	0.283	(	0.485)	0.256
148	12.33	0.87	0.561	0.281	(	0.505)	0.279
149	12.42	0.87	0.561	0.280	(	0.505)	0.281
150	12.50	0.87	0.561	0.278	(	0.505)	0.282
151	12.58	0.93	0.604	0.277	(	0.543)	0.327
152	12.67	0.93	0.604	0.275	(	0.543)	0.328
153	12.75	0.93	0.604	0.274	(	0.543)	0.330
154	12.83	0.97	0.625	0.273	(	0.563)	0.353
155	12.92	0.97	0.625	0.271	(	0.563)	0.354
156	13.00	0.97	0.625	0.270	(	0.563)	0.355
157	13.08	1.13	0.733	0.269	(	0.660)	0.464
158	13.17	1.13	0.733	0.267	(	0.660)	0.466
159	13.25	1.13	0.733	0.266	(	0.660)	0.467
160	13.33	1.13	0.733	0.265	(	0.660)	0.469
161	13.42	1.13	0.733	0.263	(	0.660)	0.470
162	13.50	1.13	0.733	0.262	(	0.660)	0.471
163	13.58	0.77	0.496	0.261	(	0.446)	0.235
164	13.67	0.77	0.496	0.259	(	0.446)	0.237

165	13.75	0.77	0.496	0.258	(0.446)	0.238
166	13.83	0.77	0.496	0.257	(0.446)	0.239
167	13.92	0.77	0.496	0.255	(0.446)	0.241
168	14.00	0.77	0.496	0.254	(0.446)	0.242
169	14.08	0.90	0.582	0.253	(0.524)	0.329
170	14.17	0.90	0.582	0.251	(0.524)	0.331
171	14.25	0.90	0.582	0.250	(0.524)	0.332
172	14.33	0.87	0.561	0.249	(0.505)	0.312
173	14.42	0.87	0.561	0.248	(0.505)	0.313
174	14.50	0.87	0.561	0.246	(0.505)	0.314
175	14.58	0.87	0.561	0.245	(0.505)	0.316
176	14.67	0.87	0.561	0.244	(0.505)	0.317
177	14.75	0.87	0.561	0.242	(0.505)	0.318
178	14.83	0.83	0.539	0.241	(0.485)	0.298
179	14.92	0.83	0.539	0.240	(0.485)	0.299
180	15.00	0.83	0.539	0.239	(0.485)	0.300
181	15.08	0.80	0.517	0.238	(0.466)	0.280
182	15.17	0.80	0.517	0.236	(0.466)	0.281
183	15.25	0.80	0.517	0.235	(0.466)	0.282
184	15.33	0.77	0.496	0.234	(0.446)	0.262
185	15.42	0.77	0.496	0.233	(0.446)	0.263
186	15.50	0.77	0.496	0.232	(0.446)	0.264
187	15.58	0.63	0.410	0.230	(0.369)	0.179
188	15.67	0.63	0.410	0.229	(0.369)	0.180
189	15.75	0.63	0.410	0.228	(0.369)	0.182
190	15.83	0.63	0.410	0.227	(0.369)	0.183
191	15.92	0.63	0.410	0.226	(0.369)	0.184
192	16.00	0.63	0.410	0.224	(0.369)	0.185
193	16.08	0.13	0.086	(0.223)	0.078	0.009
194	16.17	0.13	0.086	(0.222)	0.078	0.009
195	16.25	0.13	0.086	(0.221)	0.078	0.009
196	16.33	0.13	0.086	(0.220)	0.078	0.009
197	16.42	0.13	0.086	(0.219)	0.078	0.009
198	16.50	0.13	0.086	(0.218)	0.078	0.009
199	16.58	0.10	0.065	(0.217)	0.058	0.006
200	16.67	0.10	0.065	(0.215)	0.058	0.006
201	16.75	0.10	0.065	(0.214)	0.058	0.006
202	16.83	0.10	0.065	(0.213)	0.058	0.006

203	16.92	0.10	0.065	(0.212)	0.058	0.006
204	17.00	0.10	0.065	(0.211)	0.058	0.006
205	17.08	0.17	0.108	(0.210)	0.097	0.011
206	17.17	0.17	0.108	(0.209)	0.097	0.011
207	17.25	0.17	0.108	(0.208)	0.097	0.011
208	17.33	0.17	0.108	(0.207)	0.097	0.011
209	17.42	0.17	0.108	(0.206)	0.097	0.011
210	17.50	0.17	0.108	(0.205)	0.097	0.011
211	17.58	0.17	0.108	(0.204)	0.097	0.011
212	17.67	0.17	0.108	(0.203)	0.097	0.011
213	17.75	0.17	0.108	(0.202)	0.097	0.011
214	17.83	0.13	0.086	(0.201)	0.078	0.009
215	17.92	0.13	0.086	(0.200)	0.078	0.009
216	18.00	0.13	0.086	(0.199)	0.078	0.009
217	18.08	0.13	0.086	(0.198)	0.078	0.009
218	18.17	0.13	0.086	(0.197)	0.078	0.009
219	18.25	0.13	0.086	(0.196)	0.078	0.009
220	18.33	0.13	0.086	(0.195)	0.078	0.009
221	18.42	0.13	0.086	(0.194)	0.078	0.009
222	18.50	0.13	0.086	(0.193)	0.078	0.009
223	18.58	0.10	0.065	(0.192)	0.058	0.006
224	18.67	0.10	0.065	(0.191)	0.058	0.006
225	18.75	0.10	0.065	(0.190)	0.058	0.006
226	18.83	0.07	0.043	(0.189)	0.039	0.004
227	18.92	0.07	0.043	(0.188)	0.039	0.004
228	19.00	0.07	0.043	(0.188)	0.039	0.004
229	19.08	0.10	0.065	(0.187)	0.058	0.006
230	19.17	0.10	0.065	(0.186)	0.058	0.006
231	19.25	0.10	0.065	(0.185)	0.058	0.006
232	19.33	0.13	0.086	(0.184)	0.078	0.009
233	19.42	0.13	0.086	(0.183)	0.078	0.009
234	19.50	0.13	0.086	(0.182)	0.078	0.009
235	19.58	0.10	0.065	(0.182)	0.058	0.006
236	19.67	0.10	0.065	(0.181)	0.058	0.006
237	19.75	0.10	0.065	(0.180)	0.058	0.006
238	19.83	0.07	0.043	(0.179)	0.039	0.004
239	19.92	0.07	0.043	(0.178)	0.039	0.004
240	20.00	0.07	0.043	(0.178)	0.039	0.004

241	20.08	0.10	0.065	(0.177)	0.058	0.006
242	20.17	0.10	0.065	(0.176)	0.058	0.006
243	20.25	0.10	0.065	(0.175)	0.058	0.006
244	20.33	0.10	0.065	(0.174)	0.058	0.006
245	20.42	0.10	0.065	(0.174)	0.058	0.006
246	20.50	0.10	0.065	(0.173)	0.058	0.006
247	20.58	0.10	0.065	(0.172)	0.058	0.006
248	20.67	0.10	0.065	(0.171)	0.058	0.006
249	20.75	0.10	0.065	(0.171)	0.058	0.006
250	20.83	0.07	0.043	(0.170)	0.039	0.004
251	20.92	0.07	0.043	(0.169)	0.039	0.004
252	21.00	0.07	0.043	(0.169)	0.039	0.004
253	21.08	0.10	0.065	(0.168)	0.058	0.006
254	21.17	0.10	0.065	(0.167)	0.058	0.006
255	21.25	0.10	0.065	(0.167)	0.058	0.006
256	21.33	0.07	0.043	(0.166)	0.039	0.004
257	21.42	0.07	0.043	(0.165)	0.039	0.004
258	21.50	0.07	0.043	(0.165)	0.039	0.004
259	21.58	0.10	0.065	(0.164)	0.058	0.006
260	21.67	0.10	0.065	(0.164)	0.058	0.006
261	21.75	0.10	0.065	(0.163)	0.058	0.006
262	21.83	0.07	0.043	(0.163)	0.039	0.004
263	21.92	0.07	0.043	(0.162)	0.039	0.004
264	22.00	0.07	0.043	(0.161)	0.039	0.004
265	22.08	0.10	0.065	(0.161)	0.058	0.006
266	22.17	0.10	0.065	(0.160)	0.058	0.006
267	22.25	0.10	0.065	(0.160)	0.058	0.006
268	22.33	0.07	0.043	(0.159)	0.039	0.004
269	22.42	0.07	0.043	(0.159)	0.039	0.004
270	22.50	0.07	0.043	(0.158)	0.039	0.004
271	22.58	0.07	0.043	(0.158)	0.039	0.004
272	22.67	0.07	0.043	(0.157)	0.039	0.004
273	22.75	0.07	0.043	(0.157)	0.039	0.004
274	22.83	0.07	0.043	(0.157)	0.039	0.004
275	22.92	0.07	0.043	(0.156)	0.039	0.004
276	23.00	0.07	0.043	(0.156)	0.039	0.004
277	23.08	0.07	0.043	(0.155)	0.039	0.004
278	23.17	0.07	0.043	(0.155)	0.039	0.004

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279  23.25     0.07      0.043       (  0.155)       0.039        0.004
280  23.33     0.07      0.043       (  0.155)       0.039        0.004
281  23.42     0.07      0.043       (  0.154)       0.039        0.004
282  23.50     0.07      0.043       (  0.154)       0.039        0.004
283  23.58     0.07      0.043       (  0.154)       0.039        0.004
284  23.67     0.07      0.043       (  0.153)       0.039        0.004
285  23.75     0.07      0.043       (  0.153)       0.039        0.004
286  23.83     0.07      0.043       (  0.153)       0.039        0.004
287  23.92     0.07      0.043       (  0.153)       0.039        0.004
288  24.00     0.07      0.043       (  0.153)       0.039        0.004
            (Loss Rate Not Used)
    Sum =     100.0                                    Sum =    20.2
     Flood volume = Effective rainfall      1.68(In)
      times area       1.6(Ac.)/[(In)/(Ft.)] =       0.2(Ac.Ft)
     Total soil loss =      3.71(In)
     Total soil loss =     0.504(Ac.Ft)
     Total rainfall =      5.39(In)
     Flood volume =        9957.3 Cubic Feet
     Total soil loss =       21934.7 Cubic Feet
     ---------------------------------------------------------------------
      Peak flow rate of this hydrograph =      0.774(CFS)
     ---------------------------------------------------------------------
     +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                         24 - H O U R    S T O R M
                    R u n o f f      H y d r o g r a p h
     ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

     ---------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
 ------------------------------------------------------------------------
   0+ 5       0.0000      0.01  Q          |         |         |         |
   0+10       0.0001      0.01  Q          |         |         |         |
   0+15       0.0001      0.01  Q          |         |         |         |
   0+20       0.0002      0.01  Q          |         |         |         |
   0+25       0.0003      0.01  Q          |         |         |         |
   0+30       0.0004      0.01  Q          |         |         |         |
   0+35       0.0004      0.01  Q          |         |         |         |
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0+40	0.0005	0.01	Q				
0+45	0.0006	0.01	Q				
0+50	0.0007	0.01	Q				
0+55	0.0008	0.01	Q				
1+ 0	0.0009	0.01	Q				
1+ 5	0.0009	0.01	Q				
1+10	0.0010	0.01	Q				
1+15	0.0011	0.01	Q				
1+20	0.0012	0.01	Q				
1+25	0.0012	0.01	Q				
1+30	0.0013	0.01	Q				
1+35	0.0014	0.01	Q				
1+40	0.0015	0.01	Q				
1+45	0.0015	0.01	Q				
1+50	0.0016	0.01	Q				
1+55	0.0017	0.01	Q				
2+ 0	0.0018	0.01	Q				
2+ 5	0.0019	0.01	Q				
2+10	0.0020	0.01	Q				
2+15	0.0021	0.01	Q				
2+20	0.0022	0.01	Q				
2+25	0.0023	0.01	Q				
2+30	0.0024	0.01	Q				
2+35	0.0025	0.02	Q				
2+40	0.0026	0.02	Q				
2+45	0.0028	0.02	Q				
2+50	0.0029	0.02	Q				
2+55	0.0030	0.02	Q				
3+ 0	0.0031	0.02	Q				
3+ 5	0.0032	0.02	Q				
3+10	0.0034	0.02	Q				
3+15	0.0035	0.02	Q				
3+20	0.0036	0.02	Q				
3+25	0.0037	0.02	Q				
3+30	0.0039	0.02	Q				
3+35	0.0040	0.02	Q				
3+40	0.0041	0.02	Q				
3+45	0.0042	0.02	Q				

3+50	0.0044	0.02	Q				
3+55	0.0045	0.02	Q				
4+ 0	0.0047	0.02	Q				
4+ 5	0.0048	0.02	Q				
4+10	0.0050	0.02	Q				
4+15	0.0051	0.02	Q				
4+20	0.0053	0.02	Q				
4+25	0.0054	0.02	Q				
4+30	0.0056	0.02	Q				
4+35	0.0058	0.02	QV				
4+40	0.0059	0.02	QV				
4+45	0.0061	0.02	QV				
4+50	0.0063	0.03	QV				
4+55	0.0065	0.03	QV				
5+ 0	0.0067	0.03	QV				
5+ 5	0.0069	0.02	QV				
5+10	0.0070	0.02	QV				
5+15	0.0071	0.02	QV				
5+20	0.0073	0.02	QV				
5+25	0.0075	0.02	QV				
5+30	0.0077	0.02	QV				
5+35	0.0078	0.03	QV				
5+40	0.0080	0.03	QV				
5+45	0.0082	0.03	QV				
5+50	0.0084	0.03	QV				
5+55	0.0086	0.03	QV				
6+ 0	0.0088	0.03	QV				
6+ 5	0.0090	0.03	QV				
6+10	0.0093	0.03	QV				
6+15	0.0095	0.03	QV				
6+20	0.0097	0.03	QV				
6+25	0.0099	0.03	QV				
6+30	0.0101	0.03	QV				
6+35	0.0104	0.03	QV				
6+40	0.0106	0.04	QV				
6+45	0.0109	0.04	QV				
6+50	0.0111	0.04	QV				
6+55	0.0114	0.04	QV				

7+ 0	0.0116	0.04	Q V	|	|	|	|
7+ 5	0.0118	0.04	Q V	|	|	|	|
7+10	0.0121	0.04	Q V	|	|	|	|
7+15	0.0123	0.04	Q V	|	|	|	|
7+20	0.0126	0.04	Q V	|	|	|	|
7+25	0.0129	0.04	Q V	|	|	|	|
7+30	0.0131	0.04	Q V	|	|	|	|
7+35	0.0134	0.04	Q V	|	|	|	|
7+40	0.0137	0.04	Q V	|	|	|	|
7+45	0.0140	0.04	Q V	|	|	|	|
7+50	0.0143	0.05	Q V	|	|	|	|
7+55	0.0146	0.05	Q V	|	|	|	|
8+ 0	0.0149	0.05	Q V	|	|	|	|
8+ 5	0.0153	0.05	Q V	|	|	|	|
8+10	0.0157	0.05	Q V	|	|	|	|
8+15	0.0160	0.05	Q V	|	|	|	|
8+20	0.0164	0.05	Q V	|	|	|	|
8+25	0.0168	0.05	Q V	|	|	|	|
8+30	0.0171	0.05	Q V	|	|	|	|
8+35	0.0175	0.06	Q V	|	|	|	|
8+40	0.0179	0.06	Q V	|	|	|	|
8+45	0.0183	0.06	Q V	|	|	|	|
8+50	0.0187	0.06	Q V	|	|	|	|
8+55	0.0191	0.06	Q V	|	|	|	|
9+ 0	0.0195	0.06	Q V	|	|	|	|
9+ 5	0.0203	0.10	Q V	|	|	|	|
9+10	0.0211	0.12	Q V	|	|	|	|
9+15	0.0219	0.12	Q V	|	|	|	|
9+20	0.0229	0.15	Q V	|	|	|	|
9+25	0.0240	0.16	Q V	|	|	|	|
9+30	0.0251	0.16	Q V	|	|	|	|
9+35	0.0265	0.19	Q V	|	|	|	|
9+40	0.0278	0.20	Q V	|	|	|	|
9+45	0.0293	0.21	Q V	|	|	|	|
9+50	0.0309	0.24	Q V	|	|	|	|
9+55	0.0326	0.25	Q V	|	|	|	|
10+ 0	0.0343	0.25	Q V	|	|	|	|
10+ 5	0.0349	0.09	Q V	|	|	|	|

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10+10       0.0353      0.05  Q     V   |          |          |          |
10+15       0.0357      0.05  Q     V   |          |          |          |
10+20       0.0360      0.05  Q     V   |          |          |          |
10+25       0.0364      0.05  Q     V   |          |          |          |
10+30       0.0368      0.05  Q     V   |          |          |          |
10+35       0.0379      0.17  Q     V   |          |          |          |
10+40       0.0393      0.20  Q     V   |          |          |          |
10+45       0.0407      0.20  Q      V  |          |          |          |
10+50       0.0421      0.20  Q      V  |          |          |          |
10+55       0.0435      0.21  Q      V  |          |          |          |
11+ 0       0.0449      0.21  Q      V  |          |          |          |
11+ 5       0.0462      0.18  Q       V |          |          |          |
11+10       0.0474      0.18  Q       V |          |          |          |
11+15       0.0486      0.18  Q       V |          |          |          |
11+20       0.0499      0.18  Q       V |          |          |          |
11+25       0.0511      0.18  Q       V |          |          |          |
11+30       0.0524      0.19  Q        V|          |          |          |
11+35       0.0533      0.13  Q        V|          |          |          |
11+40       0.0542      0.12  Q        V|          |          |          |
11+45       0.0550      0.12  Q        V|          |          |          |
11+50       0.0561      0.15  Q        V|          |          |          |
11+55       0.0572      0.16  Q         V          |          |          |
12+ 0       0.0584      0.17  Q         V          |          |          |
12+ 5       0.0609      0.37  |Q        V          |          |          |
12+10       0.0638      0.42  |Q         |V         |          |          |
12+15       0.0667      0.42  |Q         |V         |          |          |
12+20       0.0698      0.45  |Q         | V        |          |          |
12+25       0.0730      0.46  |Q         | V        |          |          |
12+30       0.0762      0.46  |Q         |  V       |          |          |
12+35       0.0798      0.52  | Q        |  V       |          |          |
12+40       0.0835      0.54  | Q        |   V      |          |          |
12+45       0.0872      0.54  | Q        |    V     |          |          |
12+50       0.0911      0.57  | Q        |    V     |          |          |
12+55       0.0951      0.58  | Q        |     V    |          |          |
13+ 0       0.0992      0.58  | Q        |      V   |          |          |
13+ 5       0.1042      0.73  | Q        |       V  |          |          |
13+10       0.1095      0.77  |  Q       |        V |          |          |
13+15       0.1147      0.77  |  Q       |         V|          |          |
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13+20       0.1200      0.77  |  Q       |          |V         |          |
13+25       0.1254      0.77  |  Q       |          |V         |          |
13+30       0.1307      0.77  |  Q       |          | V        |          |
13+35       0.1339      0.46  |Q         |          |  V       |          |
13+40       0.1365      0.39  |Q         |          |  V       |          |
13+45       0.1392      0.39  |Q         |          |   V      |          |
13+50       0.1419      0.39  |Q         |          |   V      |          |
13+55       0.1447      0.40  |Q         |          |    V     |          |
14+ 0       0.1474      0.40  |Q         |          |    V     |          |
14+ 5       0.1509      0.51  | Q        |          |     V    |          |
14+10       0.1547      0.54  | Q        |          |      V   |          |
14+15       0.1584      0.55  | Q        |          |      V   |          |
14+20       0.1620      0.52  | Q        |          |       V  |          |
14+25       0.1655      0.51  | Q        |          |       V  |          |
14+30       0.1691      0.52  | Q        |          |        V |          |
14+35       0.1727      0.52  | Q        |          |         V|          |
14+40       0.1763      0.52  | Q        |          |         V|          |
14+45       0.1799      0.52  | Q        |          |          |V         |
14+50       0.1833      0.50  |Q         |          |          | V        |
14+55       0.1867      0.49  |Q         |          |          | V        |
15+ 0       0.1900      0.49  |Q         |          |          |  V       |
15+ 5       0.1933      0.47  |Q         |          |          |  V       |
15+10       0.1964      0.46  |Q         |          |          |   V      |
15+15       0.1996      0.46  |Q         |          |          |   V      |
15+20       0.2026      0.44  |Q         |          |          |    V     |
15+25       0.2056      0.43  |Q         |          |          |    V     |
15+30       0.2086      0.43  |Q         |          |          |     V    |
15+35       0.2108      0.32  |Q         |          |          |     V    |
15+40       0.2129      0.30  |Q         |          |          |      V   |
15+45       0.2149      0.30  |Q         |          |          |      V   |
15+50       0.2170      0.30  |Q         |          |          |      V   |
15+55       0.2191      0.30  |Q         |          |          |       V  |
16+ 0       0.2212      0.30  |Q         |          |          |       V  |
16+ 5       0.2216      0.07  Q          |          |          |       V  |
16+10       0.2217      0.01  Q          |          |          |       V  |
16+15       0.2218      0.01  Q          |          |          |       V  |
16+20       0.2219      0.01  Q          |          |          |       V  |
16+25       0.2220      0.01  Q          |          |          |       V  |
```

```
16+30       0.2221      0.01  Q          |          |          |        V |
16+35       0.2222      0.01  Q          |          |          |        V |
16+40       0.2223      0.01  Q          |          |          |        V |
16+45       0.2224      0.01  Q          |          |          |        V |
16+50       0.2224      0.01  Q          |          |          |        V |
16+55       0.2225      0.01  Q          |          |          |        V |
17+ 0       0.2226      0.01  Q          |          |          |        V |
17+ 5       0.2227      0.02  Q          |          |          |        V |
17+10       0.2228      0.02  Q          |          |          |        V |
17+15       0.2229      0.02  Q          |          |          |         V|
17+20       0.2230      0.02  Q          |          |          |         V|
17+25       0.2232      0.02  Q          |          |          |         V|
17+30       0.2233      0.02  Q          |          |          |         V|
17+35       0.2234      0.02  Q          |          |          |         V|
17+40       0.2235      0.02  Q          |          |          |         V|
17+45       0.2237      0.02  Q          |          |          |         V|
17+50       0.2238      0.01  Q          |          |          |         V|
17+55       0.2239      0.01  Q          |          |          |         V|
18+ 0       0.2240      0.01  Q          |          |          |         V|
18+ 5       0.2241      0.01  Q          |          |          |         V|
18+10       0.2242      0.01  Q          |          |          |         V|
18+15       0.2243      0.01  Q          |          |          |         V|
18+20       0.2243      0.01  Q          |          |          |         V|
18+25       0.2244      0.01  Q          |          |          |         V|
18+30       0.2245      0.01  Q          |          |          |         V|
18+35       0.2246      0.01  Q          |          |          |         V|
18+40       0.2247      0.01  Q          |          |          |         V|
18+45       0.2248      0.01  Q          |          |          |         V|
18+50       0.2248      0.01  Q          |          |          |         V|
18+55       0.2249      0.01  Q          |          |          |         V|
19+ 0       0.2249      0.01  Q          |          |          |         V|
19+ 5       0.2250      0.01  Q          |          |          |         V|
19+10       0.2251      0.01  Q          |          |          |         V|
19+15       0.2251      0.01  Q          |          |          |         V|
19+20       0.2252      0.01  Q          |          |          |         V|
19+25       0.2253      0.01  Q          |          |          |         V|
19+30       0.2254      0.01  Q          |          |          |         V|
19+35       0.2255      0.01  Q          |          |          |         V|
```

19+40	0.2256	0.01	Q	|	|	|	V|
19+45	0.2256	0.01	Q	|	|	|	V|
19+50	0.2257	0.01	Q	|	|	|	V|
19+55	0.2257	0.01	Q	|	|	|	V|
20+ 0	0.2258	0.01	Q	|	|	|	V|
20+ 5	0.2259	0.01	Q	|	|	|	V|
20+10	0.2259	0.01	Q	|	|	|	V|
20+15	0.2260	0.01	Q	|	|	|	V|
20+20	0.2261	0.01	Q	|	|	|	V|
20+25	0.2262	0.01	Q	|	|	|	V|
20+30	0.2262	0.01	Q	|	|	|	V|
20+35	0.2263	0.01	Q	|	|	|	V|
20+40	0.2264	0.01	Q	|	|	|	V|
20+45	0.2265	0.01	Q	|	|	|	V|
20+50	0.2265	0.01	Q	|	|	|	V|
20+55	0.2266	0.01	Q	|	|	|	V|
21+ 0	0.2266	0.01	Q	|	|	|	V|
21+ 5	0.2267	0.01	Q	|	|	|	V|
21+10	0.2267	0.01	Q	|	|	|	V|
21+15	0.2268	0.01	Q	|	|	|	V|
21+20	0.2269	0.01	Q	|	|	|	V|
21+25	0.2269	0.01	Q	|	|	|	V|
21+30	0.2270	0.01	Q	|	|	|	V|
21+35	0.2270	0.01	Q	|	|	|	V|
21+40	0.2271	0.01	Q	|	|	|	V|
21+45	0.2272	0.01	Q	|	|	|	V|
21+50	0.2272	0.01	Q	|	|	|	V|
21+55	0.2273	0.01	Q	|	|	|	V|
22+ 0	0.2273	0.01	Q	|	|	|	V|
22+ 5	0.2274	0.01	Q	|	|	|	V|
22+10	0.2275	0.01	Q	|	|	|	V|
22+15	0.2275	0.01	Q	|	|	|	V|
22+20	0.2276	0.01	Q	|	|	|	V|
22+25	0.2277	0.01	Q	|	|	|	V|
22+30	0.2277	0.01	Q	|	|	|	V|
22+35	0.2277	0.01	Q	|	|	|	V|
22+40	0.2278	0.01	Q	|	|	|	V|
22+45	0.2278	0.01	Q	|	|	|	V|

```
   22+50       0.2279      0.01  Q          |          |          |         V|
   22+55       0.2279      0.01  Q          |          |          |         V|
   23+ 0       0.2280      0.01  Q          |          |          |         V|
   23+ 5       0.2280      0.01  Q          |          |          |         V|
   23+10       0.2281      0.01  Q          |          |          |         V|
   23+15       0.2281      0.01  Q          |          |          |         V|
   23+20       0.2282      0.01  Q          |          |          |         V|
   23+25       0.2282      0.01  Q          |          |          |         V|
   23+30       0.2283      0.01  Q          |          |          |         V|
   23+35       0.2283      0.01  Q          |          |          |         V|
   23+40       0.2284      0.01  Q          |          |          |         V|
   23+45       0.2284      0.01  Q          |          |          |         V|
   23+50       0.2285      0.01  Q          |          |          |         V|
   23+55       0.2285      0.01  Q          |          |          |         V|
   24+ 0       0.2286      0.01  Q          |          |          |         V|
   24+ 5       0.2286      0.00  Q          |          |          |          V
---------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 17- 100 YR, 1-hr

Drainage Area = 0.57(Ac.) = 0.001 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 0.57(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 170.00(Ft.)
Length along longest watercourse measured to centroid = 85.00(Ft.)
Length along longest watercourse = 0.032 Mi.
Length along longest watercourse measured to centroid = 0.016 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 31.0588 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.011 Hr.
Lag time =     0.63 Min.
25% of lag time =     0.16 Min.
40% of lag time =     0.25 Min.
Unit time =     5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.57             0.51                 0.29

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.57             1.61                 0.92

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.514(In)
Area Averaged 100-Year Rainfall =    1.610(In)

Point rain (area averaged) =    1.610(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    1.610(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     0.570           69.00          0.200
 Total Area Entered =      0.57(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306        1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

Slope of intensity-duration curve for a 1 hour storm =0.5500

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	787.922	80.889	0.465
2	0.167	1575.845	19.111	0.110
		Sum = 100.000	Sum=	0.574

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max		Low	Effective (In/Hr)
1	0.08	3.30	0.638	0.306	(	0.574)	0.332
2	0.17	4.20	0.811	0.306	(	0.730)	0.506
3	0.25	4.40	0.850	0.306	(	0.765)	0.544
4	0.33	4.80	0.927	0.306	(	0	

U n i t H y d r o g r a p h A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 17- 100 YR, 3-hr

Drainage Area = 0.57(Ac.) = 0.001 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 0.57(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 170.00(Ft.)
Length along longest watercourse measured to centroid = 85.00(Ft.)
Length along longest watercourse = 0.032 Mi.
Length along longest watercourse measured to centroid = 0.016 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 31.0588 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.011 Hr.
Lag time =     0.63 Min.
25% of lag time =     0.16 Min.
40% of lag time =     0.25 Min.
Unit time =     5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.57             0.86                 0.49

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.57             2.25                 1.28

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.864(In)
Area Averaged 100-Year Rainfall =    2.250(In)

Point rain (area averaged) =    2.250(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.250(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     0.570           69.00         0.200
 Total Area Entered =      0.57(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306       1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	787.922	80.889	0.465
2	0.167	1575.845	19.111	0.110
		Sum = 100.000	Sum=	0.574

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max		Low	Effective (In/Hr)
1	0.08	1.30	0.351	0.306	(	0.316)	0.045
2	0.17	1.30	0.351	0.306	(	0.316)	0.045
3	0.25	1.10	0.297	(0.306)		0.267	0.030
4	0.33	1.50	0.405	0.306	(	0.364)	0.099
5	0.42	1.50	0.405	0.306	(	0.364)	0.099
6	0.50	1.80	0.486	0.306	(	0.437)	0.180
7	0.58	1.50	0.405	0.306	(	0.364)	0.099
8	0.67	1.80	0.486	0.306	(	0.437)	0.180
9	0.75	1.80	0.486	0.306	(	0.437)	0.180
10	0.83	1.50	0.405	0.306	(	0.364)	0.099
11	0.92	1.60	0.432	0.306	(	0.389)	0.126
12	1.00	1.80	0.486	0.306	(	0.437)	0.180

```
13   1.08     2.20      0.594          0.306    (  0.535)         0.288
14   1.17     2.20      0.594          0.306    (  0.535)         0.288
15   1.25     2.20      0.594          0.306    (  0.535)         0.288
16   1.33     2.00      0.540          0.306    (  0.486)         0.234
17   1.42     2.60      0.702          0.306    (  0.632)         0.396
18   1.50     2.70      0.729          0.306    (  0.656)         0.423
19   1.58     2.40      0.648          0.306    (  0.583)         0.342
20   1.67     2.70      0.729          0.306    (  0.656)         0.423
21   1.75     3.30      0.891          0.306    (  0.802)         0.585
22   1.83     3.10      0.837          0.306    (  0.753)         0.531
23   1.92     2.90      0.783          0.306    (  0.705)         0.477
24   2.00     3.00      0.810          0.306    (  0.729)         0.504
25   2.08     3.10      0.837          0.306    (  0.753)         0.531
26   2.17     4.20      1.134          0.306    (  1.021)         0.828
27   2.25     5.00      1.350          0.306    (  1.215)         1.044
28   2.33     3.50      0.945          0.306    (  0.850)         0.639
29   2.42     6.80      1.836          0.306    (  1.652)         1.530
30   2.50     7.30      1.971          0.306    (  1.774)         1.665
31   2.58     8.20      2.214          0.306    (  1.993)         1.908
32   2.67     5.90      1.593          0.306    (  1.434)         1.287
33   2.75     2.00      0.540          0.306    (  0.486)         0.234
34   2.83     1.80      0.486          0.306    (  0.437)         0.180
35   2.92     1.80      0.486          0.306    (  0.437)         0.180
36   3.00     0.60      0.162       (  0.306)       0.146         0.016
          (Loss Rate Not Used)
   Sum =     100.0                                    Sum =    16.2
    Flood volume = Effective rainfall      1.35(In)
     times area       0.6(Ac.)/[(In)/(Ft.)] =       0.1(Ac.Ft)
    Total soil loss =      0.90(In)
    Total soil loss =     0.043(Ac.Ft)
    Total rainfall =      2.25(In)
    Flood volume =        2792.1 Cubic Feet
    Total soil loss =        1863.4 Cubic Feet
    ---------------------------------------------------------------------
     Peak flow rate of this hydrograph =      1.070(CFS)
    ---------------------------------------------------------------------
    +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        3 - H O U R    S T O R M
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R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0001	0.02	Q	|	|	|	|
0+10	0.0003	0.03	Q	|	|	|	|
0+15	0.0005	0.02	Q	|	|	|	|
0+20	0.0008	0.05	Q	|	|	|	|
0+25	0.0012	0.06	Q	|	|	|	|
0+30	0.0018	0.09	QV	|	|	|	|
0+35	0.0023	0.07	QV	|	|	|	|
0+40	0.0029	0.09	QV	|	|	|	|
0+45	0.0037	0.10	Q V	|	|	|	|
0+50	0.0041	0.07	Q V	|	|	|	|
0+55							

U n i t H y d r o g r a p h A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 17- 100 YR, 6-hr

Drainage Area = 0.57(Ac.) = 0.001 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 0.57(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 170.00(Ft.)
Length along longest watercourse measured to centroid = 85.00(Ft.)
Length along longest watercourse = 0.032 Mi.
Length along longest watercourse measured to centroid = 0.016 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 31.0588 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.011 Hr.
Lag time =     0.63 Min.
25% of lag time =     0.16 Min.
40% of lag time =     0.25 Min.
Unit time =     5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.57             1.20                  0.68

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.57             2.99                  1.70

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.200(In)
Area Averaged 100-Year Rainfall =    2.990(In)

Point rain (area averaged) =    2.990(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.990(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     0.570           69.00         0.200
 Total Area Entered =      0.57(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306       1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	787.922	80.889	0.465
2	0.167	1575.845	19.111	0.110
		Sum = 100.000	Sum=	0.574

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max		Low	Effective (In/Hr)
1	0.08	0.50	0.179	(0.306)	0.161	0.018
2	0.17	0.60	0.215	(0.306)	0.194	0.022
3	0.25	0.60	0.215	(0.306)	0.194	0.022
4	0.33	0.60	0.215	(0.306)	0.194	0.022
5	0.42	0.60	0.215	(0.306)	0.194	0.022
6	0.50	0.70	0.251	(0.306)	0.226	0.025
7	0.58	0.70	0.251	(0.306)	0.226	0.025
8	0.67	0.70	0.251	(0.306)	0.226	0.025
9	0.75	0.70	0.251	(0.306)	0.226	0.025
10	0.83	0.70	0.251	(0.306)	0.226	0.025
11	0.92	0.70	0.251	(0.306)	0.226	0.025
12	1.00	0.80	0.287	(0.306)	0.258	0.029

13	1.08	0.80	0.287	(0.306)	0.258	0.029
14	1.17	0.80	0.287	(0.306)	0.258	0.029
15	1.25	0.80	0.287	(0.306)	0.258	0.029
16	1.33	0.80	0.287	(0.306)	0.258	0.029
17	1.42	0.80	0.287	(0.306)	0.258	0.029
18	1.50	0.80	0.287	(0.306)	0.258	0.029
19	1.58	0.80	0.287	(0.306)	0.258	0.029
20	1.67	0.80	0.287	(0.306)	0.258	0.029
21	1.75	0.80	0.287	(0.306)	0.258	0.029
22	1.83	0.80	0.287	(0.306)	0.258	0.029
23	1.92	0.80	0.287	(0.306)	0.258	0.029
24	2.00	0.90	0.323	(0.306)	0.291	0.032
25	2.08	0.80	0.287	(0.306)	0.258	0.029
26	2.17	0.90	0.323	(0.306)	0.291	0.032
27	2.25	0.90	0.323	(0.306)	0.291	0.032
28	2.33	0.90	0.323	(0.306)	0.291	0.032
29	2.42	0.90	0.323	(0.306)	0.291	0.032
30	2.50	0.90	0.323	(0.306)	0.291	0.032
31	2.58	0.90	0.323	(0.306)	0.291	0.032
32	2.67	0.90	0.323	(0.306)	0.291	0.032
33	2.75	1.00	0.359	0.306	(0.323)	0.053
34	2.83	1.00	0.359	0.306	(0.323)	0.053
35	2.92	1.00	0.359	0.306	(0.323)	0.053
36	3.00	1.00	0.359	0.306	(0.323)	0.053
37	3.08	1.00	0.359	0.306	(0.323)	0.053
38	3.17	1.10	0.395	0.306	(0.355)	0.089
39	3.25	1.10	0.395	0.306	(0.355)	0.089
40	3.33	1.10	0.395	0.306	(0.355)	0.089
41	3.42	1.20	0.431	0.306	(0.388)	0.125
42	3.50	1.30	0.466	0.306	(0.420)	0.161
43	3.58	1.40	0.502	0.306	(0.452)	0.197
44	3.67	1.40	0.502	0.306	(0.452)	0.197
45	3.75	1.50	0.538	0.306	(0.484)	0.233
46	3.83	1.50	0.538	0.306	(0.484)	0.233
47	3.92	1.60	0.574	0.306	(0.517)	0.268
48	4.00	1.60	0.574	0.306	(0.517)	0.268
49	4.08	1.70	0.610	0.306	(0.549)	0.304
50	4.17	1.80	0.646	0.306	(0.581)	0.340

```
51   4.25     1.90      0.682          0.306    (  0.614)        0.376
52   4.33     2.00      0.718          0.306    (  0.646)        0.412
53   4.42     2.10      0.753          0.306    (  0.678)        0.448
54   4.50     2.10      0.753          0.306    (  0.678)        0.448
55   4.58     2.20      0.789          0.306    (  0.710)        0.484
56   4.67     2.30      0.825          0.306    (  0.743)        0.520
57   4.75     2.40      0.861          0.306    (  0.775)        0.555
58   4.83     2.40      0.861          0.306    (  0.775)        0.555
59   4.92     2.50      0.897          0.306    (  0.807)        0.591
60   5.00     2.60      0.933          0.306    (  0.840)        0.627
61   5.08     3.10      1.112          0.306    (  1.001)        0.807
62   5.17     3.60      1.292          0.306    (  1.163)        0.986
63   5.25     3.90      1.399          0.306    (  1.259)        1.094
64   5.33     4.20      1.507          0.306    (  1.356)        1.201
65   5.42     4.70      1.686          0.306    (  1.518)        1.381
66   5.50     5.60      2.009          0.306    (  1.808)        1.704
67   5.58     1.90      0.682          0.306    (  0.614)        0.376
68   5.67     0.90      0.323       (  0.306)       0.291        0.032
69   5.75     0.60      0.215       (  0.306)       0.194        0.022
70   5.83     0.50      0.179       (  0.306)       0.161        0.018
71   5.92     0.30      0.108       (  0.306)       0.097        0.011
72   6.00     0.20      0.072       (  0.306)       0.065        0.007
          (Loss Rate Not Used)
   Sum =     100.0                                    Sum =    16.4
    Flood volume = Effective rainfall      1.37(In)
     times area       0.6(Ac.)/[(In)/(Ft.)] =       0.1(Ac.Ft)
    Total soil loss =      1.62(In)
    Total soil loss =     0.077(Ac.Ft)
    Total rainfall =      2.99(In)
    Flood volume =        2827.3 Cubic Feet
    Total soil loss =        3359.3 Cubic Feet
    ---------------------------------------------------------------
     Peak flow rate of this hydrograph =      0.944(CFS)
    ---------------------------------------------------------------
    +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        6 - H O U R    S T O R M
                    R u n o f f      H y d r o g r a p h
    ---------------------------------------------------------------
```

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0001	0.01	Q				
0+10	0.0001	0.01	Q				
0+15	0.0002	0.01	Q				
0+20	0.0003	0.01	Q				
0+25	0.0004	0.01	Q				
0+30	0.0005	0.01	Q				
0+35	0.0006	0.01	Q				
0+40	0.0007	0.01	Q				
0+45	0.0008	0.01	Q				
0+50	0.0009	0.01	Q				
0+55	0.0010	0.01	Q				
1+ 0	0.0011	0.02	Q				
1+ 5	0.0012	0.02	Q				
1+10	0.0013	0.02	Q				
1+15	0.0014	0.02	Q				
1+20	0.0016	0.02	Q				
1+25	0.0017	0.02	QV				
1+30	0.0018	0.02	QV				
1+35	0.0019	0.02	QV				
1+40	0.0020	0.02	QV				
1+45	0.0021	0.02	QV				
1+50	0.0022	0.02	QV				
1+55	0.0024	0.02	QV				
2+ 0	0.0025	0.02	QV				
2+ 5	0.0026	0.02	QV				
2+10	0.0027	0.02	QV				
2+15	0.0028	0.02	QV				
2+20	0.0030	0.02	QV				
2+25	0.0031	0.02	QV				
2+30	0.0032	0.02	QV				

U n i t H y d r o g r a p h A n a l y s i s

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Study date 01/03/23 File: VOLT1724100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 17- 100 YR, 24-hr

Drainage Area = 0.57(Ac.) = 0.001 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 0.57(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 170.00(Ft.)
Length along longest watercourse measured to centroid = 85.00(Ft.)
Length along longest watercourse = 0.032 Mi.
Length along longest watercourse measured to centroid = 0.016 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 31.0588 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.011 Hr.
Lag time =     0.63 Min.
25% of lag time =     0.16 Min.
40% of lag time =     0.25 Min.
Unit time =     5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.57             2.06                  1.17

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.57             5.39                  3.07

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    2.060(In)
Area Averaged 100-Year Rainfall =    5.390(In)

Point rain (area averaged) =    5.390(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    5.390(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     0.570           69.00         0.200
 Total Area Entered =      0.57(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306       1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	787.922	80.889	0.465
2	0.167	1575.845	19.111	0.110
			Sum = 100.000 Sum=	0.574

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.043	(0.542)	0.039	0.004
2	0.17	0.07	0.043	(0.540)	0.039	0.004
3	0.25	0.07	0.043	(0.538)	0.039	0.004
4	0.33	0.10	0.065	(0.536)	0.058	0.006
5	0.42	0.10	0.065	(0.534)	0.058	0.006
6	0.50	0.10	0.065	(0.531)	0.058	0.006
7	0.58	0.10	0.065	(0.529)	0.058	0.006
8	0.67	0.10	0.065	(0.527)	0.058	0.006
9	0.75	0.10	0.065	(0.525)	0.058	0.006
10	0.83	0.13	0.086	(0.523)	0.078	0.009
11	0.92	0.13	0.086	(0.521)	0.078	0.009
12	1.00	0.13	0.086	(0.519)	0.078	0.009

13	1.08	0.10	0.065	(0.517)	0.058	0.006
14	1.17	0.10	0.065	(0.515)	0.058	0.006
15	1.25	0.10	0.065	(0.513)	0.058	0.006
16	1.33	0.10	0.065	(0.511)	0.058	0.006
17	1.42	0.10	0.065	(0.509)	0.058	0.006
18	1.50	0.10	0.065	(0.507)	0.058	0.006
19	1.58	0.10	0.065	(0.505)	0.058	0.006
20	1.67	0.10	0.065	(0.503)	0.058	0.006
21	1.75	0.10	0.065	(0.501)	0.058	0.006
22	1.83	0.13	0.086	(0.499)	0.078	0.009
23	1.92	0.13	0.086	(0.497)	0.078	0.009
24	2.00	0.13	0.086	(0.495)	0.078	0.009
25	2.08	0.13	0.086	(0.493)	0.078	0.009
26	2.17	0.13	0.086	(0.491)	0.078	0.009
27	2.25	0.13	0.086	(0.489)	0.078	0.009
28	2.33	0.13	0.086	(0.487)	0.078	0.009
29	2.42	0.13	0.086	(0.485)	0.078	0.009
30	2.50	0.13	0.086	(0.483)	0.078	0.009
31	2.58	0.17	0.108	(0.481)	0.097	0.011
32	2.67	0.17	0.108	(0.479)	0.097	0.011
33	2.75	0.17	0.108	(0.477)	0.097	0.011
34	2.83	0.17	0.108	(0.475)	0.097	0.011
35	2.92	0.17	0.108	(0.473)	0.097	0.011
36	3.00	0.17	0.108	(0.471)	0.097	0.011
37	3.08	0.17	0.108	(0.469)	0.097	0.011
38	3.17	0.17	0.108	(0.467)	0.097	0.011
39	3.25	0.17	0.108	(0.465)	0.097	0.011
40	3.33	0.17	0.108	(0.463)	0.097	0.011
41	3.42	0.17	0.108	(0.461)	0.097	0.011
42	3.50	0.17	0.108	(0.459)	0.097	0.011
43	3.58	0.17	0.108	(0.457)	0.097	0.011
44	3.67	0.17	0.108	(0.456)	0.097	0.011
45	3.75	0.17	0.108	(0.454)	0.097	0.011
46	3.83	0.20	0.129	(0.452)	0.116	0.013
47	3.92	0.20	0.129	(0.450)	0.116	0.013
48	4.00	0.20	0.129	(0.448)	0.116	0.013
49	4.08	0.20	0.129	(0.446)	0.116	0.013
50	4.17	0.20	0.129	(0.444)	0.116	0.013

51	4.25	0.20	0.129	(0.442)	0.116	0.013
52	4.33	0.23	0.151	(0.440)	0.136	0.015
53	4.42	0.23	0.151	(0.438)	0.136	0.015
54	4.50	0.23	0.151	(0.437)	0.136	0.015
55	4.58	0.23	0.151	(0.435)	0.136	0.015
56	4.67	0.23	0.151	(0.433)	0.136	0.015
57	4.75	0.23	0.151	(0.431)	0.136	0.015
58	4.83	0.27	0.172	(0.429)	0.155	0.017
59	4.92	0.27	0.172	(0.427)	0.155	0.017
60	5.00	0.27	0.172	(0.425)	0.155	0.017
61	5.08	0.20	0.129	(0.424)	0.116	0.013
62	5.17	0.20	0.129	(0.422)	0.116	0.013
63	5.25	0.20	0.129	(0.420)	0.116	0.013
64	5.33	0.23	0.151	(0.418)	0.136	0.015
65	5.42	0.23	0.151	(0.416)	0.136	0.015
66	5.50	0.23	0.151	(0.414)	0.136	0.015
67	5.58	0.27	0.172	(0.413)	0.155	0.017
68	5.67	0.27	0.172	(0.411)	0.155	0.017
69	5.75	0.27	0.172	(0.409)	0.155	0.017
70	5.83	0.27	0.172	(0.407)	0.155	0.017
71	5.92	0.27	0.172	(0.405)	0.155	0.017
72	6.00	0.27	0.172	(0.404)	0.155	0.017
73	6.08	0.30	0.194	(0.402)	0.175	0.019
74	6.17	0.30	0.194	(0.400)	0.175	0.019
75	6.25	0.30	0.194	(0.398)	0.175	0.019
76	6.33	0.30	0.194	(0.396)	0.175	0.019
77	6.42	0.30	0.194	(0.395)	0.175	0.019
78	6.50	0.30	0.194	(0.393)	0.175	0.019
79	6.58	0.33	0.216	(0.391)	0.194	0.022
80	6.67	0.33	0.216	(0.389)	0.194	0.022
81	6.75	0.33	0.216	(0.388)	0.194	0.022
82	6.83	0.33	0.216	(0.386)	0.194	0.022
83	6.92	0.33	0.216	(0.384)	0.194	0.022
84	7.00	0.33	0.216	(0.382)	0.194	0.022
85	7.08	0.33	0.216	(0.381)	0.194	0.022
86	7.17	0.33	0.216	(0.379)	0.194	0.022
87	7.25	0.33	0.216	(0.377)	0.194	0.022
88	7.33	0.37	0.237	(0.375)	0.213	0.024

89	7.42	0.37	0.237	(0.374)	0.213	0.024
90	7.50	0.37	0.237	(0.372)	0.213	0.024
91	7.58	0.40	0.259	(0.370)	0.233	0.026
92	7.67	0.40	0.259	(0.369)	0.233	0.026
93	7.75	0.40	0.259	(0.367)	0.233	0.026
94	7.83	0.43	0.280	(0.365)	0.252	0.028
95	7.92	0.43	0.280	(0.363)	0.252	0.028
96	8.00	0.43	0.280	(0.362)	0.252	0.028
97	8.08	0.50	0.323	(0.360)	0.291	0.032
98	8.17	0.50	0.323	(0.358)	0.291	0.032
99	8.25	0.50	0.323	(0.357)	0.291	0.032
100	8.33	0.50	0.323	(0.355)	0.291	0.032
101	8.42	0.50	0.323	(0.353)	0.291	0.032
102	8.50	0.50	0.323	(0.352)	0.291	0.032
103	8.58	0.53	0.345	(0.350)	0.310	0.034
104	8.67	0.53	0.345	(0.348)	0.310	0.034
105	8.75	0.53	0.345	(0.347)	0.310	0.034
106	8.83	0.57	0.367	(0.345)	0.330	0.037
107	8.92	0.57	0.367	(0.344)	0.330	0.037
108	9.00	0.57	0.367	(0.342)	0.330	0.037
109	9.08	0.63	0.410	0.340	(0.369)	0.069
110	9.17	0.63	0.410	0.339	(0.369)	0.071
111	9.25	0.63	0.410	0.337	(0.369)	0.073
112	9.33	0.67	0.431	0.335	(0.388)	0.096
113	9.42	0.67	0.431	0.334	(0.388)	0.097
114	9.50	0.67	0.431	0.332	(0.388)	0.099
115	9.58	0.70	0.453	0.331	(0.407)	0.122
116	9.67	0.70	0.453	0.329	(0.407)	0.124
117	9.75	0.70	0.453	0.328	(0.407)	0.125
118	9.83	0.73	0.474	0.326	(0.427)	0.148
119	9.92	0.73	0.474	0.324	(0.427)	0.150
120	10.00	0.73	0.474	0.323	(0.427)	0.152
121	10.08	0.50	0.323	(0.321)	0.291	0.032
122	10.17	0.50	0.323	(0.320)	0.291	0.032
123	10.25	0.50	0.323	(0.318)	0.291	0.032
124	10.33	0.50	0.323	(0.317)	0.291	0.032
125	10.42	0.50	0.323	(0.315)	0.291	0.032
126	10.50	0.50	0.323	(0.314)	0.291	0.032

127	10.58	0.67	0.431	0.312	(	0.388)	0.119
128	10.67	0.67	0.431	0.310	(	0.388)	0.121
129	10.75	0.67	0.431	0.309	(	0.388)	0.122
130	10.83	0.67	0.431	0.307	(	0.388)	0.124
131	10.92	0.67	0.431	0.306	(	0.388)	0.125
132	11.00	0.67	0.431	0.304	(	0.388)	0.127
133	11.08	0.63	0.410	0.303	(	0.369)	0.107
134	11.17	0.63	0.410	0.301	(	0.369)	0.108
135	11.25	0.63	0.410	0.300	(	0.369)	0.110
136	11.33	0.63	0.410	0.298	(	0.369)	0.111
137	11.42	0.63	0.410	0.297	(	0.369)	0.113
138	11.50	0.63	0.410	0.296	(	0.369)	0.114
139	11.58	0.57	0.367	0.294	(	0.330)	0.072
140	11.67	0.57	0.367	0.293	(	0.330)	0.074
141	11.75	0.57	0.367	0.291	(	0.330)	0.075
142	11.83	0.60	0.388	0.290	(	0.349)	0.098
143	11.92	0.60	0.388	0.288	(	0.349)	0.100
144	12.00	0.60	0.388	0.287	(	0.349)	0.101
145	12.08	0.83	0.539	0.285	(	0.485)	0.254
146	12.17	0.83	0.539	0.284	(	0.485)	0.255
147	12.25	0.83	0.539	0.283	(	0.485)	0.256
148	12.33	0.87	0.561	0.281	(	0.505)	0.279
149	12.42	0.87	0.561	0.280	(	0.505)	0.281
150	12.50	0.87	0.561	0.278	(	0.505)	0.282
151	12.58	0.93	0.604	0.277	(	0.543)	0.327
152	12.67	0.93	0.604	0.275	(	0.543)	0.328
153	12.75	0.93	0.604	0.274	(	0.543)	0.330
154	12.83	0.97	0.625	0.273	(	0.563)	0.353
155	12.92	0.97	0.625	0.271	(	0.563)	0.354
156	13.00	0.97	0.625	0.270	(	0.563)	0.355
157	13.08	1.13	0.733	0.269	(	0.660)	0.464
158	13.17	1.13	0.733	0.267	(	0.660)	0.466
159	13.25	1.13	0.733	0.266	(	0.660)	0.467
160	13.33	1.13	0.733	0.265	(	0.660)	0.469
161	13.42	1.13	0.733	0.263	(	0.660)	0.470
162	13.50	1.13	0.733	0.262	(	0.660)	0.471
163	13.58	0.77	0.496	0.261	(	0.446)	0.235
164	13.67	0.77	0.496	0.259	(	0.446)	0.237

165	13.75	0.77	0.496	0.258	(0.446)	0.238
166	13.83	0.77	0.496	0.257	(0.446)	0.239
167	13.92	0.77	0.496	0.255	(0.446)	0.241
168	14.00	0.77	0.496	0.254	(0.446)	0.242
169	14.08	0.90	0.582	0.253	(0.524)	0.329
170	14.17	0.90	0.582	0.251	(0.524)	0.331
171	14.25	0.90	0.582	0.250	(0.524)	0.332
172	14.33	0.87	0.561	0.249	(0.505)	0.312
173	14.42	0.87	0.561	0.248	(0.505)	0.313
174	14.50	0.87	0.561	0.246	(0.505)	0.314
175	14.58	0.87	0.561	0.245	(0.505)	0.316
176	14.67	0.87	0.561	0.244	(0.505)	0.317
177	14.75	0.87	0.561	0.242	(0.505)	0.318
178	14.83	0.83	0.539	0.241	(0.485)	0.298
179	14.92	0.83	0.539	0.240	(0.485)	0.299
180	15.00	0.83	0.539	0.239	(0.485)	0.300
181	15.08	0.80	0.517	0.238	(0.466)	0.280
182	15.17	0.80	0.517	0.236	(0.466)	0.281
183	15.25	0.80	0.517	0.235	(0.466)	0.282
184	15.33	0.77	0.496	0.234	(0.446)	0.262
185	15.42	0.77	0.496	0.233	(0.446)	0.263
186	15.50	0.77	0.496	0.232	(0.446)	0.264
187	15.58	0.63	0.410	0.230	(0.369)	0.179
188	15.67	0.63	0.410	0.229	(0.369)	0.180
189	15.75	0.63	0.410	0.228	(0.369)	0.182
190	15.83	0.63	0.410	0.227	(0.369)	0.183
191	15.92	0.63	0.410	0.226	(0.369)	0.184
192	16.00	0.63	0.410	0.224	(0.369)	0.185
193	16.08	0.13	0.086	(0.223)	0.078	0.009
194	16.17	0.13	0.086	(0.222)	0.078	0.009
195	16.25	0.13	0.086	(0.221)	0.078	0.009
196	16.33	0.13	0.086	(0.220)	0.078	0.009
197	16.42	0.13	0.086	(0.219)	0.078	0.009
198	16.50	0.13	0.086	(0.218)	0.078	0.009
199	16.58	0.10	0.065	(0.217)	0.058	0.006
200	16.67	0.10	0.065	(0.215)	0.058	0.006
201	16.75	0.10	0.065	(0.214)	0.058	0.006
202	16.83	0.10	0.065	(0.213)	0.058	0.006

203	16.92	0.10	0.065	(0.212)	0.058	0.006
204	17.00	0.10	0.065	(0.211)	0.058	0.006
205	17.08	0.17	0.108	(0.210)	0.097	0.011
206	17.17	0.17	0.108	(0.209)	0.097	0.011
207	17.25	0.17	0.108	(0.208)	0.097	0.011
208	17.33	0.17	0.108	(0.207)	0.097	0.011
209	17.42	0.17	0.108	(0.206)	0.097	0.011
210	17.50	0.17	0.108	(0.205)	0.097	0.011
211	17.58	0.17	0.108	(0.204)	0.097	0.011
212	17.67	0.17	0.108	(0.203)	0.097	0.011
213	17.75	0.17	0.108	(0.202)	0.097	0.011
214	17.83	0.13	0.086	(0.201)	0.078	0.009
215	17.92	0.13	0.086	(0.200)	0.078	0.009
216	18.00	0.13	0.086	(0.199)	0.078	0.009
217	18.08	0.13	0.086	(0.198)	0.078	0.009
218	18.17	0.13	0.086	(0.197)	0.078	0.009
219	18.25	0.13	0.086	(0.196)	0.078	0.009
220	18.33	0.13	0.086	(0.195)	0.078	0.009
221	18.42	0.13	0.086	(0.194)	0.078	0.009
222	18.50	0.13	0.086	(0.193)	0.078	0.009
223	18.58	0.10	0.065	(0.192)	0.058	0.006
224	18.67	0.10	0.065	(0.191)	0.058	0.006
225	18.75	0.10	0.065	(0.190)	0.058	0.006
226	18.83	0.07	0.043	(0.189)	0.039	0.004
227	18.92	0.07	0.043	(0.188)	0.039	0.004
228	19.00	0.07	0.043	(0.188)	0.039	0.004
229	19.08	0.10	0.065	(0.187)	0.058	0.006
230	19.17	0.10	0.065	(0.186)	0.058	0.006
231	19.25	0.10	0.065	(0.185)	0.058	0.006
232	19.33	0.13	0.086	(0.184)	0.078	0.009
233	19.42	0.13	0.086	(0.183)	0.078	0.009
234	19.50	0.13	0.086	(0.182)	0.078	0.009
235	19.58	0.10	0.065	(0.182)	0.058	0.006
236	19.67	0.10	0.065	(0.181)	0.058	0.006
237	19.75	0.10	0.065	(0.180)	0.058	0.006
238	19.83	0.07	0.043	(0.179)	0.039	0.004
239	19.92	0.07	0.043	(0.178)	0.039	0.004
240	20.00	0.07	0.043	(0.178)	0.039	0.004

241	20.08	0.10	0.065	(0.177)	0.058	0.006
242	20.17	0.10	0.065	(0.176)	0.058	0.006
243	20.25	0.10	0.065	(0.175)	0.058	0.006
244	20.33	0.10	0.065	(0.174)	0.058	0.006
245	20.42	0.10	0.065	(0.174)	0.058	0.006
246	20.50	0.10	0.065	(0.173)	0.058	0.006
247	20.58	0.10	0.065	(0.172)	0.058	0.006
248	20.67	0.10	0.065	(0.171)	0.058	0.006
249	20.75	0.10	0.065	(0.171)	0.058	0.006
250	20.83	0.07	0.043	(0.170)	0.039	0.004
251	20.92	0.07	0.043	(0.169)	0.039	0.004
252	21.00	0.07	0.043	(0.169)	0.039	0.004
253	21.08	0.10	0.065	(0.168)	0.058	0.006
254	21.17	0.10	0.065	(0.167)	0.058	0.006
255	21.25	0.10	0.065	(0.167)	0.058	0.006
256	21.33	0.07	0.043	(0.166)	0.039	0.004
257	21.42	0.07	0.043	(0.165)	0.039	0.004
258	21.50	0.07	0.043	(0.165)	0.039	0.004
259	21.58	0.10	0.065	(0.164)	0.058	0.006
260	21.67	0.10	0.065	(0.164)	0.058	0.006
261	21.75	0.10	0.065	(0.163)	0.058	0.006
262	21.83	0.07	0.043	(0.163)	0.039	0.004
263	21.92	0.07	0.043	(0.162)	0.039	0.004
264	22.00	0.07	0.043	(0.161)	0.039	0.004
265	22.08	0.10	0.065	(0.161)	0.058	0.006
266	22.17	0.10	0.065	(0.160)	0.058	0.006
267	22.25	0.10	0.065	(0.160)	0.058	0.006
268	22.33	0.07	0.043	(0.159)	0.039	0.004
269	22.42	0.07	0.043	(0.159)	0.039	0.004
270	22.50	0.07	0.043	(0.158)	0.039	0.004
271	22.58	0.07	0.043	(0.158)	0.039	0.004
272	22.67	0.07	0.043	(0.157)	0.039	0.004
273	22.75	0.07	0.043	(0.157)	0.039	0.004
274	22.83	0.07	0.043	(0.157)	0.039	0.004
275	22.92	0.07	0.043	(0.156)	0.039	0.004
276	23.00	0.07	0.043	(0.156)	0.039	0.004
277	23.08	0.07	0.043	(0.155)	0.039	0.004
278	23.17	0.07	0.043	(0.155)	0.039	0.004

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279  23.25     0.07      0.043       (  0.155)       0.039        0.004
280  23.33     0.07      0.043       (  0.155)       0.039        0.004
281  23.42     0.07      0.043       (  0.154)       0.039        0.004
282  23.50     0.07      0.043       (  0.154)       0.039        0.004
283  23.58     0.07      0.043       (  0.154)       0.039        0.004
284  23.67     0.07      0.043       (  0.153)       0.039        0.004
285  23.75     0.07      0.043       (  0.153)       0.039        0.004
286  23.83     0.07      0.043       (  0.153)       0.039        0.004
287  23.92     0.07      0.043       (  0.153)       0.039        0.004
288  24.00     0.07      0.043       (  0.153)       0.039        0.004
          (Loss Rate Not Used)
    Sum =     100.0                                  Sum =    20.2
     Flood volume = Effective rainfall      1.68(In)
      times area       0.6(Ac.)/[(In)/(Ft.)] =       0.1(Ac.Ft)
     Total soil loss =      3.71(In)
     Total soil loss =     0.176(Ac.Ft)
     Total rainfall =      5.39(In)
     Flood volume =        3482.0 Cubic Feet
     Total soil loss =        7670.4 Cubic Feet
     ---------------------------------------------------------------------
      Peak flow rate of this hydrograph =      0.271(CFS)
     ---------------------------------------------------------------------
     +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                         24 - H O U R    S T O R M
                    R u n o f f     H y d r o g r a p h
     ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

     ---------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
 ------------------------------------------------------------------------
   0+ 5       0.0000      0.00  Q         |         |         |         |
   0+10       0.0000      0.00  Q         |         |         |         |
   0+15       0.0000      0.00  Q         |         |         |         |
   0+20       0.0001      0.00  Q         |         |         |         |
   0+25       0.0001      0.00  Q         |         |         |         |
   0+30       0.0001      0.00  Q         |         |         |         |
   0+35       0.0001      0.00  Q         |         |         |         |
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0+40	0.0002	0.00	Q	|	|	|	|
0+45	0.0002	0.00	Q	|	|	|	|
0+50	0.0002	0.00	Q	|	|	|	|
0+55	0.0003	0.00	Q	|	|	|	|
1+ 0	0.0003	0.00	Q	|	|	|	|
1+ 5	0.0003	0.00	Q	|	|	|	|
1+10	0.0004	0.00	Q	|	|	|	|
1+15	0.0004	0.00	Q	|	|	|	|
1+20	0.0004	0.00	Q	|	|	|	|
1+25	0.0004	0.00	Q	|	|	|	|
1+30	0.0005	0.00	Q	|	|	|	|
1+35	0.0005	0.00	Q	|	|	|	|
1+40	0.0005	0.00	Q	|	|	|	|
1+45	0.0005	0.00	Q	|	|	|	|
1+50	0.0006	0.00	Q	|	|	|	|
1+55	0.0006	0.00	Q	|	|	|	|
2+ 0	0.0006	0.00	Q	|	|	|	|
2+ 5	0.0007	0.00	Q	|	|	|	|
2+10	0.0007	0.00	Q	|	|	|	|
2+15	0.0007	0.00	Q	|	|	|	|
2+20	0.0008	0.00	Q	|	|	|	|
2+25	0.0008	0.00	Q	|	|	|	|
2+30	0.0008	0.00	Q	|	|	|	|
2+35	0.0009	0.01	Q	|	|	|	|
2+40	0.0009	0.01	Q	|	|	|	|
2+45	0.0010	0.01	Q	|	|	|	|
2+50	0.0010	0.01	Q	|	|	|	|
2+55	0.0011	0.01	Q	|	|	|	|
3+ 0	0.0011	0.01	Q	|	|	|	|
3+ 5	0.0011	0.01	Q	|	|	|	|
3+10	0.0012	0.01	Q	|	|	|	|
3+15	0.0012	0.01	Q	|	|	|	|
3+20	0.0013	0.01	Q	|	|	|	|
3+25	0.0013	0.01	Q	|	|	|	|
3+30	0.0013	0.01	Q	|	|	|	|
3+35	0.0014	0.01	Q	|	|	|	|
3+40	0.0014	0.01	Q	|	|	|	|
3+45	0.0015	0.01	Q	|	|	|	|

3+50	0.0015	0.01	Q				
3+55	0.0016	0.01	Q				
4+ 0	0.0016	0.01	Q				
4+ 5	0.0017	0.01	Q				
4+10	0.0017	0.01	Q				
4+15	0.0018	0.01	Q				
4+20	0.0018	0.01	Q				
4+25	0.0019	0.01	Q				
4+30	0.0020	0.01	Q				
4+35	0.0020	0.01	QV				
4+40	0.0021	0.01	QV				
4+45	0.0021	0.01	QV				
4+50	0.0022	0.01	QV				
4+55	0.0023	0.01	QV				
5+ 0	0.0023	0.01	QV				
5+ 5	0.0024	0.01	QV				
5+10	0.0024	0.01	QV				
5+15	0.0025	0.01	QV				
5+20	0.0026	0.01	QV				
5+25	0.0026	0.01	QV				
5+30	0.0027	0.01	QV				
5+35	0.0027	0.01	QV				
5+40	0.0028	0.01	QV				
5+45	0.0029	0.01	QV				
5+50	0.0029	0.01	QV				
5+55	0.0030	0.01	QV				
6+ 0	0.0031	0.01	QV				
6+ 5	0.0032	0.01	QV				
6+10	0.0032	0.01	QV				
6+15	0.0033	0.01	QV				
6+20	0.0034	0.01	QV				
6+25	0.0035	0.01	QV				
6+30	0.0035	0.01	QV				
6+35	0.0036	0.01	QV				
6+40	0.0037	0.01	QV				
6+45	0.0038	0.01	QV				
6+50	0.0039	0.01	QV				
6+55	0.0040	0.01	QV				

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 7+ 0       0.0041      0.01  Q V       |          |          |          |
 7+ 5       0.0041      0.01  Q V       |          |          |          |
 7+10       0.0042      0.01  Q V       |          |          |          |
 7+15       0.0043      0.01  Q V       |          |          |          |
 7+20       0.0044      0.01  Q V       |          |          |          |
 7+25       0.0045      0.01  Q V       |          |          |          |
 7+30       0.0046      0.01  Q V       |          |          |          |
 7+35       0.0047      0.01  Q V       |          |          |          |
 7+40       0.0048      0.01  Q V       |          |          |          |
 7+45       0.0049      0.01  Q V       |          |          |          |
 7+50       0.0050      0.02  Q V       |          |          |          |
 7+55       0.0051      0.02  Q V       |          |          |          |
 8+ 0       0.0052      0.02  Q V       |          |          |          |
 8+ 5       0.0054      0.02  Q V       |          |          |          |
 8+10       0.0055      0.02  Q V       |          |          |          |
 8+15       0.0056      0.02  Q V       |          |          |          |
 8+20       0.0057      0.02  Q V       |          |          |          |
 8+25       0.0059      0.02  Q V       |          |          |          |
 8+30       0.0060      0.02  Q V       |          |          |          |
 8+35       0.0061      0.02  Q  V      |          |          |          |
 8+40       0.0063      0.02  Q  V      |          |          |          |
 8+45       0.0064      0.02  Q  V      |          |          |          |
 8+50       0.0065      0.02  Q  V      |          |          |          |
 8+55       0.0067      0.02  Q  V      |          |          |          |
 9+ 0       0.0068      0.02  Q  V      |          |          |          |
 9+ 5       0.0071      0.04  Q  V      |          |          |          |
 9+10       0.0074      0.04  Q  V      |          |          |          |
 9+15       0.0076      0.04  Q  V      |          |          |          |
 9+20       0.0080      0.05  Q   V     |          |          |          |
 9+25       0.0084      0.06  Q   V     |          |          |          |
 9+30       0.0088      0.06  Q   V     |          |          |          |
 9+35       0.0093      0.07  Q   V     |          |          |          |
 9+40       0.0097      0.07  Q   V     |          |          |          |
 9+45       0.0102      0.07  Q    V    |          |          |          |
 9+50       0.0108      0.08  Q    V    |          |          |          |
 9+55       0.0114      0.09  Q    V    |          |          |          |
10+ 0       0.0120      0.09  Q     V   |          |          |          |
10+ 5       0.0122      0.03  Q     V   |          |          |          |
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10+10       0.0123      0.02  Q     V   |          |          |          |
10+15       0.0125      0.02  Q     V   |          |          |          |
10+20       0.0126      0.02  Q     V   |          |          |          |
10+25       0.0127      0.02  Q     V   |          |          |          |
10+30       0.0129      0.02  Q     V   |          |          |          |
10+35       0.0133      0.06  Q     V   |          |          |          |
10+40       0.0137      0.07  Q     V   |          |          |          |
10+45       0.0142      0.07  Q      V  |          |          |          |
10+50       0.0147      0.07  Q      V  |          |          |          |
10+55       0.0152      0.07  Q      V  |          |          |          |
11+ 0       0.0157      0.07  Q      V  |          |          |          |
11+ 5       0.0161      0.06  Q       V |          |          |          |
11+10       0.0166      0.06  Q       V |          |          |          |
11+15       0.0170      0.06  Q       V |          |          |          |
11+20       0.0174      0.06  Q       V |          |          |          |
11+25       0.0179      0.06  Q       V |          |          |          |
11+30       0.0183      0.07  Q        V|          |          |          |
11+35       0.0187      0.05  Q        V|          |          |          |
11+40       0.0189      0.04  Q        V|          |          |          |
11+45       0.0192      0.04  Q        V|          |          |          |
11+50       0.0196      0.05  Q        V|          |          |          |
11+55       0.0200      0.06  Q         V          |          |          |
12+ 0       0.0204      0.06  Q         V          |          |          |
12+ 5       0.0213      0.13  Q         V          |          |          |
12+10       0.0223      0.15  Q         |V         |          |          |
12+15       0.0233      0.15  Q         |V         |          |          |
12+20       0.0244      0.16  Q         | V        |          |          |
12+25       0.0255      0.16  Q         | V        |          |          |
12+30       0.0266      0.16  Q         |  V       |          |          |
12+35       0.0279      0.18  Q         |  V       |          |          |
12+40       0.0292      0.19  Q         |   V      |          |          |
12+45       0.0305      0.19  Q         |    V     |          |          |
12+50       0.0319      0.20  Q         |    V     |          |          |
12+55       0.0333      0.20  Q         |     V    |          |          |
13+ 0       0.0347      0.20  Q         |      V   |          |          |
13+ 5       0.0364      0.25  |Q        |       V  |          |          |
13+10       0.0383      0.27  |Q        |        V |          |          |
13+15       0.0401      0.27  |Q        |         V|          |          |
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13+20       0.0420      0.27  |Q        |          |V        |          |
13+25       0.0438      0.27  |Q        |          |V        |          |
13+30       0.0457      0.27  |Q        |          | V       |          |
13+35       0.0468      0.16  Q         |          |  V      |          |
13+40       0.0477      0.14  Q         |          |  V      |          |
13+45       0.0487      0.14  Q         |          |   V     |          |
13+50       0.0496      0.14  Q         |          |   V     |          |
13+55       0.0506      0.14  Q         |          |    V    |          |
14+ 0       0.0515      0.14  Q         |          |    V    |          |
14+ 5       0.0528      0.18  Q         |          |     V   |          |
14+10       0.0541      0.19  Q         |          |      V  |          |
14+15       0.0554      0.19  Q         |          |      V  |          |
14+20       0.0567      0.18  Q         |          |       V |          |
14+25       0.0579      0.18  Q         |          |       V |          |
14+30       0.0591      0.18  Q         |          |        V|          |
14+35       0.0604      0.18  Q         |          |         V          |
14+40       0.0616      0.18  Q         |          |         V          |
14+45       0.0629      0.18  Q         |          |          V         |
14+50       0.0641      0.17  Q         |          |          | V       |
14+55       0.0653      0.17  Q         |          |          | V       |
15+ 0       0.0665      0.17  Q         |          |          |  V      |
15+ 5       0.0676      0.16  Q         |          |          |  V      |
15+10       0.0687      0.16  Q         |          |          |   V     |
15+15       0.0698      0.16  Q         |          |          |   V     |
15+20       0.0709      0.15  Q         |          |          |    V    |
15+25       0.0719      0.15  Q         |          |          |    V    |
15+30       0.0730      0.15  Q         |          |          |     V   |
15+35       0.0737      0.11  Q         |          |          |     V   |
15+40       0.0744      0.10  Q         |          |          |      V  |
15+45       0.0752      0.10  Q         |          |          |      V  |
15+50       0.0759      0.10  Q         |          |          |      V  |
15+55       0.0766      0.11  Q         |          |          |       V |
16+ 0       0.0773      0.11  Q         |          |          |       V |
16+ 5       0.0775      0.02  Q         |          |          |       V |
16+10       0.0775      0.00  Q         |          |          |       V |
16+15       0.0776      0.00  Q         |          |          |       V |
16+20       0.0776      0.00  Q         |          |          |       V |
16+25       0.0776      0.00  Q         |          |          |       V |
```

16+30	0.0777	0.00	Q	|	|	|	V |
16+35	0.0777	0.00	Q	|	|	|	V |
16+40	0.0777	0.00	Q	|	|	|	V |
16+45	0.0778	0.00	Q	|	|	|	V |
16+50	0.0778	0.00	Q	|	|	|	V |
16+55	0.0778	0.00	Q	|	|	|	V |
17+ 0	0.0778	0.00	Q	|	|	|	V |
17+ 5	0.0779	0.01	Q	|	|	|	V |
17+10	0.0779	0.01	Q	|	|	|	V |
17+15	0.0780	0.01	Q	|	|	|	V|
17+20	0.0780	0.01	Q	|	|	|	V|
17+25	0.0780	0.01	Q	|	|	|	V|
17+30	0.0781	0.01	Q	|	|	|	V|
17+35	0.0781	0.01	Q	|	|	|	V|
17+40	0.0782	0.01	Q	|	|	|	V|
17+45	0.0782	0.01	Q	|	|	|	V|
17+50	0.0782	0.01	Q	|	|	|	V|
17+55	0.0783	0.00	Q	|	|	|	V|
18+ 0	0.0783	0.00	Q	|	|	|	V|
18+ 5	0.0784	0.00	Q	|	|	|	V|
18+10	0.0784	0.00	Q	|	|	|	V|
18+15	0.0784	0.00	Q	|	|	|	V|
18+20	0.0785	0.00	Q	|	|	|	V|
18+25	0.0785	0.00	Q	|	|	|	V|
18+30	0.0785	0.00	Q	|	|	|	V|
18+35	0.0785	0.00	Q	|	|	|	V|
18+40	0.0786	0.00	Q	|	|	|	V|
18+45	0.0786	0.00	Q	|	|	|	V|
18+50	0.0786	0.00	Q	|	|	|	V|
18+55	0.0786	0.00	Q	|	|	|	V|
19+ 0	0.0787	0.00	Q	|	|	|	V|
19+ 5	0.0787	0.00	Q	|	|	|	V|
19+10	0.0787	0.00	Q	|	|	|	V|
19+15	0.0787	0.00	Q	|	|	|	V|
19+20	0.0788	0.00	Q	|	|	|	V|
19+25	0.0788	0.00	Q	|	|	|	V|
19+30	0.0788	0.00	Q	|	|	|	V|
19+35	0.0789	0.00	Q	|	|	|	V|

19+40	0.0789	0.00	Q	|	|	|	V|
19+45	0.0789	0.00	Q	|	|	|	V|
19+50	0.0789	0.00	Q	|	|	|	V|
19+55	0.0789	0.00	Q	|	|	|	V|
20+ 0	0.0790	0.00	Q	|	|	|	V|
20+ 5	0.0790	0.00	Q	|	|	|	V|
20+10	0.0790	0.00	Q	|	|	|	V|
20+15	0.0790	0.00	Q	|	|	|	V|
20+20	0.0791	0.00	Q	|	|	|	V|
20+25	0.0791	0.00	Q	|	|	|	V|
20+30	0.0791	0.00	Q	|	|	|	V|
20+35	0.0791	0.00	Q	|	|	|	V|
20+40	0.0792	0.00	Q	|	|	|	V|
20+45	0.0792	0.00	Q	|	|	|	V|
20+50	0.0792	0.00	Q	|	|	|	V|
20+55	0.0792	0.00	Q	|	|	|	V|
21+ 0	0.0792	0.00	Q	|	|	|	V|
21+ 5	0.0793	0.00	Q	|	|	|	V|
21+10	0.0793	0.00	Q	|	|	|	V|
21+15	0.0793	0.00	Q	|	|	|	V|
21+20	0.0793	0.00	Q	|	|	|	V|
21+25	0.0794	0.00	Q	|	|	|	V|
21+30	0.0794	0.00	Q	|	|	|	V|
21+35	0.0794	0.00	Q	|	|	|	V|
21+40	0.0794	0.00	Q	|	|	|	V|
21+45	0.0794	0.00	Q	|	|	|	V|
21+50	0.0795	0.00	Q	|	|	|	V|
21+55	0.0795	0.00	Q	|	|	|	V|
22+ 0	0.0795	0.00	Q	|	|	|	V|
22+ 5	0.0795	0.00	Q	|	|	|	V|
22+10	0.0795	0.00	Q	|	|	|	V|
22+15	0.0796	0.00	Q	|	|	|	V|
22+20	0.0796	0.00	Q	|	|	|	V|
22+25	0.0796	0.00	Q	|	|	|	V|
22+30	0.0796	0.00	Q	|	|	|	V|
22+35	0.0796	0.00	Q	|	|	|	V|
22+40	0.0797	0.00	Q	|	|	|	V|
22+45	0.0797	0.00	Q	|	|	|	V|

```
   22+50       0.0797      0.00  Q          |          |          |         V|
   22+55       0.0797      0.00  Q          |          |          |         V|
   23+ 0       0.0797      0.00  Q          |          |          |         V|
   23+ 5       0.0797      0.00  Q          |          |          |         V|
   23+10       0.0798      0.00  Q          |          |          |         V|
   23+15       0.0798      0.00  Q          |          |          |         V|
   23+20       0.0798      0.00  Q          |          |          |         V|
   23+25       0.0798      0.00  Q          |          |          |         V|
   23+30       0.0798      0.00  Q          |          |          |         V|
   23+35       0.0798      0.00  Q          |          |          |         V|
   23+40       0.0799      0.00  Q          |          |          |         V|
   23+45       0.0799      0.00  Q          |          |          |         V|
   23+50       0.0799      0.00  Q          |          |          |         V|
   23+55       0.0799      0.00  Q          |          |          |         V|
   24+ 0       0.0799      0.00  Q          |          |          |         V|
   24+ 5       0.0799      0.00  Q          |          |          |         V|
-------------------------------------------------------------------------------
```

DRAINAGE AREA DA2
DMA'S 4-9 & 10-12

U n i t H y d r o g r a p h A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 4- 100 YR, 1-hr

Drainage Area = 1.93(Ac.) = 0.003 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.93(Ac.) = 0.003 Sq. Mi.
Length along longest watercourse = 225.00(Ft.)
Length along longest watercourse measured to centroid = 110.00(Ft.)
Length along longest watercourse = 0.043 Mi.
Length along longest watercourse measured to centroid = 0.021 Mi.
Difference in elevation = 2.13(Ft.)
Slope along watercourse = 49.9840 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.012 Hr.
Lag time =     0.71 Min.
25% of lag time =     0.18 Min.
40% of lag time =     0.28 Min.
Unit time =     5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.93              0.51                  0.99

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.93              1.61                  3.11

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.514(In)
Area Averaged 100-Year Rainfall =    1.610(In)

Point rain (area averaged) =    1.610(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    1.610(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     1.930           69.00          0.200
 Total Area Entered =      1.93(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306       1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

Slope of intensity-duration curve for a 1 hour storm =0.5500

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	702.971	78.646	1.530
2	0.167	1405.942	21.354	0.415
		Sum = 100.000	Sum=	1.945

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	3.30	0.638	0.306	(0.574)	0.332
2	0.17	4.20	0.811	0.306	(0.730)	0.506
3	0.25	4.40	0.850	0.306	(0.765)	0.544
4	0.33	4.80	0.927	0.306	(0.8	

U n i t H y d r o g r a p h A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 4- 100 YR, 3-hr

Drainage Area = 1.93(Ac.) = 0.003 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.93(Ac.) = 0.003 Sq. Mi.
Length along longest watercourse = 225.00(Ft.)
Length along longest watercourse measured to centroid = 110.00(Ft.)
Length along longest watercourse = 0.043 Mi.
Length along longest watercourse measured to centroid = 0.021 Mi.
Difference in elevation = 2.13(Ft.)
Slope along watercourse = 49.9840 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.012 Hr.
Lag time =     0.71 Min.
25% of lag time =     0.18 Min.
40% of lag time =     0.28 Min.
Unit time =     5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.93              0.86                  1.67

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.93              2.25                  4.34

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.864(In)
Area Averaged 100-Year Rainfall =    2.250(In)

Point rain (area averaged) =    2.250(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.250(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     1.930           69.00          0.200
 Total Area Entered =      1.93(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306       1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	702.971	78.646	1.530
2	0.167	1405.942	21.354	0.415
			Sum = 100.000 Sum=	1.945

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.351	0.306	(0.316)	0.045
2	0.17	1.30	0.351	0.306	(0.316)	0.045
3	0.25	1.10	0.297	(0.306)	0.267	0.030
4	0.33	1.50	0.405	0.306	(0.364)	0.099
5	0.42	1.50	0.405	0.306	(0.364)	0.099
6	0.50	1.80	0.486	0.306	(0.437)	0.180
7	0.58	1.50	0.405	0.306	(0.364)	0.099
8	0.67	1.80	0.486	0.306	(0.437)	0.180
9	0.75	1.80	0.486	0.306	(0.437)	0.180
10	0.83	1.50	0.405	0.306	(0.364)	0.099
11	0.92	1.60	0.432	0.306	(0.389)	0.126
12	1.00	1.80	0.486	0.306	(0.437)	0.180

```
13   1.08     2.20      0.594          0.306    (  0.535)         0.288
14   1.17     2.20      0.594          0.306    (  0.535)         0.288
15   1.25     2.20      0.594          0.306    (  0.535)         0.288
16   1.33     2.00      0.540          0.306    (  0.486)         0.234
17   1.42     2.60      0.702          0.306    (  0.632)         0.396
18   1.50     2.70      0.729          0.306    (  0.656)         0.423
19   1.58     2.40      0.648          0.306    (  0.583)         0.342
20   1.67     2.70      0.729          0.306    (  0.656)         0.423
21   1.75     3.30      0.891          0.306    (  0.802)         0.585
22   1.83     3.10      0.837          0.306    (  0.753)         0.531
23   1.92     2.90      0.783          0.306    (  0.705)         0.477
24   2.00     3.00      0.810          0.306    (  0.729)         0.504
25   2.08     3.10      0.837          0.306    (  0.753)         0.531
26   2.17     4.20      1.134          0.306    (  1.021)         0.828
27   2.25     5.00      1.350          0.306    (  1.215)         1.044
28   2.33     3.50      0.945          0.306    (  0.850)         0.639
29   2.42     6.80      1.836          0.306    (  1.652)         1.530
30   2.50     7.30      1.971          0.306    (  1.774)         1.665
31   2.58     8.20      2.214          0.306    (  1.993)         1.908
32   2.67     5.90      1.593          0.306    (  1.434)         1.287
33   2.75     2.00      0.540          0.306    (  0.486)         0.234
34   2.83     1.80      0.486          0.306    (  0.437)         0.180
35   2.92     1.80      0.486          0.306    (  0.437)         0.180
36   3.00     0.60      0.162       (  0.306)       0.146         0.016
          (Loss Rate Not Used)
   Sum =     100.0                                    Sum =    16.2
    Flood volume = Effective rainfall      1.35(In)
     times area       1.9(Ac.)/[(In)/(Ft.)] =       0.2(Ac.Ft)
    Total soil loss =      0.90(In)
    Total soil loss =     0.145(Ac.Ft)
    Total rainfall =      2.25(In)
    Flood volume =        9453.9 Cubic Feet
    Total soil loss =        6309.3 Cubic Feet
    ---------------------------------------------------------------------
     Peak flow rate of this hydrograph =      3.613(CFS)
    ---------------------------------------------------------------------
    +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        3 - H O U R    S T O R M
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R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0005	0.07	Q				
0+10	0.0011	0.09	Q				
0+15	0.0015	0.06	Q				
0+20	0.0027	0.16	Q				
0+25	0.0040	0.19	Q				
0+30	0.0062	0.32	|Q				
0+35	0.0077	0.23	QV				
0+40	0.0099	0.32	|Q				
0+45	0.0123	0.35	|QV				
0+50	0.0139	0.23	Q V				
0+55							

U n i t H y d r o g r a p h A n a l y s i s

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Study date 01/03/23 File: VOLT46100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 4- 100 YR, 6-hr

Drainage Area = 1.93(Ac.) = 0.003 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.93(Ac.) = 0.003 Sq. Mi.
Length along longest watercourse = 225.00(Ft.)
Length along longest watercourse measured to centroid = 110.00(Ft.)
Length along longest watercourse = 0.043 Mi.
Length along longest watercourse measured to centroid = 0.021 Mi.
Difference in elevation = 2.13(Ft.)
Slope along watercourse = 49.9840 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.012 Hr.
Lag time =     0.71 Min.
25% of lag time =     0.18 Min.
40% of lag time =     0.28 Min.
Unit time =     5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.93             1.20                 2.32

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.93             2.99                 5.77

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.200(In)
Area Averaged 100-Year Rainfall =    2.990(In)

Point rain (area averaged) =    2.990(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.990(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     1.930           69.00          0.200
 Total Area Entered =      1.93(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306       1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	702.971	78.646	1.530
2	0.167	1405.942	21.354	0.415
		Sum = 100.000	Sum=	1.945

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max		Low	Effective (In/Hr)
1	0.08	0.50	0.179	(0.306)	0.161	0.018
2	0.17	0.60	0.215	(0.306)	0.194	0.022
3	0.25	0.60	0.215	(0.306)	0.194	0.022
4	0.33	0.60	0.215	(0.306)	0.194	0.022
5	0.42	0.60	0.215	(0.306)	0.194	0.022
6	0.50	0.70	0.251	(0.306)	0.226	0.025
7	0.58	0.70	0.251	(0.306)	0.226	0.025
8	0.67	0.70	0.251	(0.306)	0.226	0.025
9	0.75	0.70	0.251	(0.306)	0.226	0.025
10	0.83	0.70	0.251	(0.306)	0.226	0.025
11	0.92	0.70	0.251	(0.306)	0.226	0.025
12	1.00	0.80	0.287	(0.306)	0.258	0.029

13	1.08	0.80	0.287	(0.306)	0.258	0.029
14	1.17	0.80	0.287	(0.306)	0.258	0.029
15	1.25	0.80	0.287	(0.306)	0.258	0.029
16	1.33	0.80	0.287	(0.306)	0.258	0.029
17	1.42	0.80	0.287	(0.306)	0.258	0.029
18	1.50	0.80	0.287	(0.306)	0.258	0.029
19	1.58	0.80	0.287	(0.306)	0.258	0.029
20	1.67	0.80	0.287	(0.306)	0.258	0.029
21	1.75	0.80	0.287	(0.306)	0.258	0.029
22	1.83	0.80	0.287	(0.306)	0.258	0.029
23	1.92	0.80	0.287	(0.306)	0.258	0.029
24	2.00	0.90	0.323	(0.306)	0.291	0.032
25	2.08	0.80	0.287	(0.306)	0.258	0.029
26	2.17	0.90	0.323	(0.306)	0.291	0.032
27	2.25	0.90	0.323	(0.306)	0.291	0.032
28	2.33	0.90	0.323	(0.306)	0.291	0.032
29	2.42	0.90	0.323	(0.306)	0.291	0.032
30	2.50	0.90	0.323	(0.306)	0.291	0.032
31	2.58	0.90	0.323	(0.306)	0.291	0.032
32	2.67	0.90	0.323	(0.306)	0.291	0.032
33	2.75	1.00	0.359	0.306	(0.323)	0.053
34	2.83	1.00	0.359	0.306	(0.323)	0.053
35	2.92	1.00	0.359	0.306	(0.323)	0.053
36	3.00	1.00	0.359	0.306	(0.323)	0.053
37	3.08	1.00	0.359	0.306	(0.323)	0.053
38	3.17	1.10	0.395	0.306	(0.355)	0.089
39	3.25	1.10	0.395	0.306	(0.355)	0.089
40	3.33	1.10	0.395	0.306	(0.355)	0.089
41	3.42	1.20	0.431	0.306	(0.388)	0.125
42	3.50	1.30	0.466	0.306	(0.420)	0.161
43	3.58	1.40	0.502	0.306	(0.452)	0.197
44	3.67	1.40	0.502	0.306	(0.452)	0.197
45	3.75	1.50	0.538	0.306	(0.484)	0.233
46	3.83	1.50	0.538	0.306	(0.484)	0.233
47	3.92	1.60	0.574	0.306	(0.517)	0.268
48	4.00	1.60	0.574	0.306	(0.517)	0.268
49	4.08	1.70	0.610	0.306	(0.549)	0.304
50	4.17	1.80	0.646	0.306	(0.581)	0.340

```
51   4.25     1.90      0.682          0.306    (  0.614)        0.376
52   4.33     2.00      0.718          0.306    (  0.646)        0.412
53   4.42     2.10      0.753          0.306    (  0.678)        0.448
54   4.50     2.10      0.753          0.306    (  0.678)        0.448
55   4.58     2.20      0.789          0.306    (  0.710)        0.484
56   4.67     2.30      0.825          0.306    (  0.743)        0.520
57   4.75     2.40      0.861          0.306    (  0.775)        0.555
58   4.83     2.40      0.861          0.306    (  0.775)        0.555
59   4.92     2.50      0.897          0.306    (  0.807)        0.591
60   5.00     2.60      0.933          0.306    (  0.840)        0.627
61   5.08     3.10      1.112          0.306    (  1.001)        0.807
62   5.17     3.60      1.292          0.306    (  1.163)        0.986
63   5.25     3.90      1.399          0.306    (  1.259)        1.094
64   5.33     4.20      1.507          0.306    (  1.356)        1.201
65   5.42     4.70      1.686          0.306    (  1.518)        1.381
66   5.50     5.60      2.009          0.306    (  1.808)        1.704
67   5.58     1.90      0.682          0.306    (  0.614)        0.376
68   5.67     0.90      0.323       (  0.306)       0.291        0.032
69   5.75     0.60      0.215       (  0.306)       0.194        0.022
70   5.83     0.50      0.179       (  0.306)       0.161        0.018
71   5.92     0.30      0.108       (  0.306)       0.097        0.011
72   6.00     0.20      0.072       (  0.306)       0.065        0.007
          (Loss Rate Not Used)
   Sum =     100.0                                   Sum =    16.4
    Flood volume = Effective rainfall      1.37(In)
     times area       1.9(Ac.)/[(In)/(Ft.)] =       0.2(Ac.Ft)
    Total soil loss =      1.62(In)
    Total soil loss =     0.261(Ac.Ft)
    Total rainfall =      2.99(In)
    Flood volume =         9573.0 Cubic Feet
    Total soil loss =       11374.5 Cubic Feet
    ---------------------------------------------------------------
     Peak flow rate of this hydrograph =      3.181(CFS)
    ---------------------------------------------------------------
    +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        6 - H O U R    S T O R M
                    R u n o f f      H y d r o g r a p h
    ---------------------------------------------------------------
```

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0002	0.03	Q				
0+10	0.0005	0.04	Q				
0+15	0.0008	0.04	Q				
0+20	0.0010	0.04	Q				
0+25	0.0013	0.04	Q				
0+30	0.0017	0.05	Q				
0+35	0.0020	0.05	Q				
0+40	0.0023	0.05	Q				
0+45	0.0027	0.05	Q				
0+50	0.0030	0.05	Q				
0+55	0.0033	0.05	Q				
1+ 0	0.0037	0.05	Q				
1+ 5	0.0041	0.06	Q				
1+10	0.0045	0.06	Q				
1+15	0.0049	0.06	Q				
1+20	0.0053	0.06	Q				
1+25	0.0056	0.06	QV				
1+30	0.0060	0.06	QV				
1+35	0.0064	0.06	QV				
1+40	0.0068	0.06	QV				
1+45	0.0072	0.06	QV				
1+50	0.0076	0.06	QV				
1+55	0.0079	0.06	QV				
2+ 0	0.0084	0.06	QV				
2+ 5	0.0088	0.06	QV				
2+10	0.0092	0.06	QV				
2+15	0.0096	0.06	QV				
2+20	0.0101	0.06	QV				
2+25	0.0105	0.06	QV				
2+30	0.0109	0.06	QV				

U n i t H y d r o g r a p h A n a l y s i s

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Study date 01/03/23 File: VOLT424100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 4- 100 YR, 24-hr

Drainage Area = 1.93(Ac.) = 0.003 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.93(Ac.) = 0.003 Sq. Mi.
Length along longest watercourse = 225.00(Ft.)
Length along longest watercourse measured to centroid = 110.00(Ft.)
Length along longest watercourse = 0.043 Mi.
Length along longest watercourse measured to centroid = 0.021 Mi.
Difference in elevation = 2.13(Ft.)
Slope along watercourse = 49.9840 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.012 Hr.
Lag time =     0.71 Min.
25% of lag time =     0.18 Min.
40% of lag time =     0.28 Min.
Unit time =     5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.93             2.06                 3.98

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.93             5.39                10.40

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    2.060(In)
Area Averaged 100-Year Rainfall =    5.390(In)

Point rain (area averaged) =    5.390(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    5.390(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     1.930           69.00          0.200
 Total Area Entered =      1.93(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306       1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	78.646	1.530
2	0.167	21.354	0.415
	Sum = 100.000	Sum=	1.945

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.043	(0.542)	0.039	0.004
2	0.17	0.07	0.043	(0.540)	0.039	0.004
3	0.25	0.07	0.043	(0.538)	0.039	0.004
4	0.33	0.10	0.065	(0.536)	0.058	0.006
5	0.42	0.10	0.065	(0.534)	0.058	0.006
6	0.50	0.10	0.065	(0.531)	0.058	0.006
7	0.58	0.10	0.065	(0.529)	0.058	0.006
8	0.67	0.10	0.065	(0.527)	0.058	0.006
9	0.75	0.10	0.065	(0.525)	0.058	0.006
10	0.83	0.13	0.086	(0.523)	0.078	0.009
11	0.92	0.13	0.086	(0.521)	0.078	0.009
12	1.00	0.13	0.086	(0.519)	0.078	0.009

13	1.08	0.10	0.065	(0.517)	0.058	0.006
14	1.17	0.10	0.065	(0.515)	0.058	0.006
15	1.25	0.10	0.065	(0.513)	0.058	0.006
16	1.33	0.10	0.065	(0.511)	0.058	0.006
17	1.42	0.10	0.065	(0.509)	0.058	0.006
18	1.50	0.10	0.065	(0.507)	0.058	0.006
19	1.58	0.10	0.065	(0.505)	0.058	0.006
20	1.67	0.10	0.065	(0.503)	0.058	0.006
21	1.75	0.10	0.065	(0.501)	0.058	0.006
22	1.83	0.13	0.086	(0.499)	0.078	0.009
23	1.92	0.13	0.086	(0.497)	0.078	0.009
24	2.00	0.13	0.086	(0.495)	0.078	0.009
25	2.08	0.13	0.086	(0.493)	0.078	0.009
26	2.17	0.13	0.086	(0.491)	0.078	0.009
27	2.25	0.13	0.086	(0.489)	0.078	0.009
28	2.33	0.13	0.086	(0.487)	0.078	0.009
29	2.42	0.13	0.086	(0.485)	0.078	0.009
30	2.50	0.13	0.086	(0.483)	0.078	0.009
31	2.58	0.17	0.108	(0.481)	0.097	0.011
32	2.67	0.17	0.108	(0.479)	0.097	0.011
33	2.75	0.17	0.108	(0.477)	0.097	0.011
34	2.83	0.17	0.108	(0.475)	0.097	0.011
35	2.92	0.17	0.108	(0.473)	0.097	0.011
36	3.00	0.17	0.108	(0.471)	0.097	0.011
37	3.08	0.17	0.108	(0.469)	0.097	0.011
38	3.17	0.17	0.108	(0.467)	0.097	0.011
39	3.25	0.17	0.108	(0.465)	0.097	0.011
40	3.33	0.17	0.108	(0.463)	0.097	0.011
41	3.42	0.17	0.108	(0.461)	0.097	0.011
42	3.50	0.17	0.108	(0.459)	0.097	0.011
43	3.58	0.17	0.108	(0.457)	0.097	0.011
44	3.67	0.17	0.108	(0.456)	0.097	0.011
45	3.75	0.17	0.108	(0.454)	0.097	0.011
46	3.83	0.20	0.129	(0.452)	0.116	0.013
47	3.92	0.20	0.129	(0.450)	0.116	0.013
48	4.00	0.20	0.129	(0.448)	0.116	0.013
49	4.08	0.20	0.129	(0.446)	0.116	0.013
50	4.17	0.20	0.129	(0.444)	0.116	0.013

51	4.25	0.20	0.129	(0.442)	0.116	0.013
52	4.33	0.23	0.151	(0.440)	0.136	0.015
53	4.42	0.23	0.151	(0.438)	0.136	0.015
54	4.50	0.23	0.151	(0.437)	0.136	0.015
55	4.58	0.23	0.151	(0.435)	0.136	0.015
56	4.67	0.23	0.151	(0.433)	0.136	0.015
57	4.75	0.23	0.151	(0.431)	0.136	0.015
58	4.83	0.27	0.172	(0.429)	0.155	0.017
59	4.92	0.27	0.172	(0.427)	0.155	0.017
60	5.00	0.27	0.172	(0.425)	0.155	0.017
61	5.08	0.20	0.129	(0.424)	0.116	0.013
62	5.17	0.20	0.129	(0.422)	0.116	0.013
63	5.25	0.20	0.129	(0.420)	0.116	0.013
64	5.33	0.23	0.151	(0.418)	0.136	0.015
65	5.42	0.23	0.151	(0.416)	0.136	0.015
66	5.50	0.23	0.151	(0.414)	0.136	0.015
67	5.58	0.27	0.172	(0.413)	0.155	0.017
68	5.67	0.27	0.172	(0.411)	0.155	0.017
69	5.75	0.27	0.172	(0.409)	0.155	0.017
70	5.83	0.27	0.172	(0.407)	0.155	0.017
71	5.92	0.27	0.172	(0.405)	0.155	0.017
72	6.00	0.27	0.172	(0.404)	0.155	0.017
73	6.08	0.30	0.194	(0.402)	0.175	0.019
74	6.17	0.30	0.194	(0.400)	0.175	0.019
75	6.25	0.30	0.194	(0.398)	0.175	0.019
76	6.33	0.30	0.194	(0.396)	0.175	0.019
77	6.42	0.30	0.194	(0.395)	0.175	0.019
78	6.50	0.30	0.194	(0.393)	0.175	0.019
79	6.58	0.33	0.216	(0.391)	0.194	0.022
80	6.67	0.33	0.216	(0.389)	0.194	0.022
81	6.75	0.33	0.216	(0.388)	0.194	0.022
82	6.83	0.33	0.216	(0.386)	0.194	0.022
83	6.92	0.33	0.216	(0.384)	0.194	0.022
84	7.00	0.33	0.216	(0.382)	0.194	0.022
85	7.08	0.33	0.216	(0.381)	0.194	0.022
86	7.17	0.33	0.216	(0.379)	0.194	0.022
87	7.25	0.33	0.216	(0.377)	0.194	0.022
88	7.33	0.37	0.237	(0.375)	0.213	0.024

89	7.42	0.37	0.237	(0.374)	0.213	0.024
90	7.50	0.37	0.237	(0.372)	0.213	0.024
91	7.58	0.40	0.259	(0.370)	0.233	0.026
92	7.67	0.40	0.259	(0.369)	0.233	0.026
93	7.75	0.40	0.259	(0.367)	0.233	0.026
94	7.83	0.43	0.280	(0.365)	0.252	0.028
95	7.92	0.43	0.280	(0.363)	0.252	0.028
96	8.00	0.43	0.280	(0.362)	0.252	0.028
97	8.08	0.50	0.323	(0.360)	0.291	0.032
98	8.17	0.50	0.323	(0.358)	0.291	0.032
99	8.25	0.50	0.323	(0.357)	0.291	0.032
100	8.33	0.50	0.323	(0.355)	0.291	0.032
101	8.42	0.50	0.323	(0.353)	0.291	0.032
102	8.50	0.50	0.323	(0.352)	0.291	0.032
103	8.58	0.53	0.345	(0.350)	0.310	0.034
104	8.67	0.53	0.345	(0.348)	0.310	0.034
105	8.75	0.53	0.345	(0.347)	0.310	0.034
106	8.83	0.57	0.367	(0.345)	0.330	0.037
107	8.92	0.57	0.367	(0.344)	0.330	0.037
108	9.00	0.57	0.367	(0.342)	0.330	0.037
109	9.08	0.63	0.410	0.340	(0.369)	0.069
110	9.17	0.63	0.410	0.339	(0.369)	0.071
111	9.25	0.63	0.410	0.337	(0.369)	0.073
112	9.33	0.67	0.431	0.335	(0.388)	0.096
113	9.42	0.67	0.431	0.334	(0.388)	0.097
114	9.50	0.67	0.431	0.332	(0.388)	0.099
115	9.58	0.70	0.453	0.331	(0.407)	0.122
116	9.67	0.70	0.453	0.329	(0.407)	0.124
117	9.75	0.70	0.453	0.328	(0.407)	0.125
118	9.83	0.73	0.474	0.326	(0.427)	0.148
119	9.92	0.73	0.474	0.324	(0.427)	0.150
120	10.00	0.73	0.474	0.323	(0.427)	0.152
121	10.08	0.50	0.323	(0.321)	0.291	0.032
122	10.17	0.50	0.323	(0.320)	0.291	0.032
123	10.25	0.50	0.323	(0.318)	0.291	0.032
124	10.33	0.50	0.323	(0.317)	0.291	0.032
125	10.42	0.50	0.323	(0.315)	0.291	0.032
126	10.50	0.50	0.323	(0.314)	0.291	0.032

127	10.58	0.67	0.431	0.312	(	0.388)	0.119
128	10.67	0.67	0.431	0.310	(	0.388)	0.121
129	10.75	0.67	0.431	0.309	(	0.388)	0.122
130	10.83	0.67	0.431	0.307	(	0.388)	0.124
131	10.92	0.67	0.431	0.306	(	0.388)	0.125
132	11.00	0.67	0.431	0.304	(	0.388)	0.127
133	11.08	0.63	0.410	0.303	(	0.369)	0.107
134	11.17	0.63	0.410	0.301	(	0.369)	0.108
135	11.25	0.63	0.410	0.300	(	0.369)	0.110
136	11.33	0.63	0.410	0.298	(	0.369)	0.111
137	11.42	0.63	0.410	0.297	(	0.369)	0.113
138	11.50	0.63	0.410	0.296	(	0.369)	0.114
139	11.58	0.57	0.367	0.294	(	0.330)	0.072
140	11.67	0.57	0.367	0.293	(	0.330)	0.074
141	11.75	0.57	0.367	0.291	(	0.330)	0.075
142	11.83	0.60	0.388	0.290	(	0.349)	0.098
143	11.92	0.60	0.388	0.288	(	0.349)	0.100
144	12.00	0.60	0.388	0.287	(	0.349)	0.101
145	12.08	0.83	0.539	0.285	(	0.485)	0.254
146	12.17	0.83	0.539	0.284	(	0.485)	0.255
147	12.25	0.83	0.539	0.283	(	0.485)	0.256
148	12.33	0.87	0.561	0.281	(	0.505)	0.279
149	12.42	0.87	0.561	0.280	(	0.505)	0.281
150	12.50	0.87	0.561	0.278	(	0.505)	0.282
151	12.58	0.93	0.604	0.277	(	0.543)	0.327
152	12.67	0.93	0.604	0.275	(	0.543)	0.328
153	12.75	0.93	0.604	0.274	(	0.543)	0.330
154	12.83	0.97	0.625	0.273	(	0.563)	0.353
155	12.92	0.97	0.625	0.271	(	0.563)	0.354
156	13.00	0.97	0.625	0.270	(	0.563)	0.355
157	13.08	1.13	0.733	0.269	(	0.660)	0.464
158	13.17	1.13	0.733	0.267	(	0.660)	0.466
159	13.25	1.13	0.733	0.266	(	0.660)	0.467
160	13.33	1.13	0.733	0.265	(	0.660)	0.469
161	13.42	1.13	0.733	0.263	(	0.660)	0.470
162	13.50	1.13	0.733	0.262	(	0.660)	0.471
163	13.58	0.77	0.496	0.261	(	0.446)	0.235
164	13.67	0.77	0.496	0.259	(	0.446)	0.237

165	13.75	0.77	0.496	0.258	(0.446)	0.238
166	13.83	0.77	0.496	0.257	(0.446)	0.239
167	13.92	0.77	0.496	0.255	(0.446)	0.241
168	14.00	0.77	0.496	0.254	(0.446)	0.242
169	14.08	0.90	0.582	0.253	(0.524)	0.329
170	14.17	0.90	0.582	0.251	(0.524)	0.331
171	14.25	0.90	0.582	0.250	(0.524)	0.332
172	14.33	0.87	0.561	0.249	(0.505)	0.312
173	14.42	0.87	0.561	0.248	(0.505)	0.313
174	14.50	0.87	0.561	0.246	(0.505)	0.314
175	14.58	0.87	0.561	0.245	(0.505)	0.316
176	14.67	0.87	0.561	0.244	(0.505)	0.317
177	14.75	0.87	0.561	0.242	(0.505)	0.318
178	14.83	0.83	0.539	0.241	(0.485)	0.298
179	14.92	0.83	0.539	0.240	(0.485)	0.299
180	15.00	0.83	0.539	0.239	(0.485)	0.300
181	15.08	0.80	0.517	0.238	(0.466)	0.280
182	15.17	0.80	0.517	0.236	(0.466)	0.281
183	15.25	0.80	0.517	0.235	(0.466)	0.282
184	15.33	0.77	0.496	0.234	(0.446)	0.262
185	15.42	0.77	0.496	0.233	(0.446)	0.263
186	15.50	0.77	0.496	0.232	(0.446)	0.264
187	15.58	0.63	0.410	0.230	(0.369)	0.179
188	15.67	0.63	0.410	0.229	(0.369)	0.180
189	15.75	0.63	0.410	0.228	(0.369)	0.182
190	15.83	0.63	0.410	0.227	(0.369)	0.183
191	15.92	0.63	0.410	0.226	(0.369)	0.184
192	16.00	0.63	0.410	0.224	(0.369)	0.185
193	16.08	0.13	0.086	(0.223)	0.078	0.009
194	16.17	0.13	0.086	(0.222)	0.078	0.009
195	16.25	0.13	0.086	(0.221)	0.078	0.009
196	16.33	0.13	0.086	(0.220)	0.078	0.009
197	16.42	0.13	0.086	(0.219)	0.078	0.009
198	16.50	0.13	0.086	(0.218)	0.078	0.009
199	16.58	0.10	0.065	(0.217)	0.058	0.006
200	16.67	0.10	0.065	(0.215)	0.058	0.006
201	16.75	0.10	0.065	(0.214)	0.058	0.006
202	16.83	0.10	0.065	(0.213)	0.058	0.006

203	16.92	0.10	0.065	(0.212)	0.058	0.006
204	17.00	0.10	0.065	(0.211)	0.058	0.006
205	17.08	0.17	0.108	(0.210)	0.097	0.011
206	17.17	0.17	0.108	(0.209)	0.097	0.011
207	17.25	0.17	0.108	(0.208)	0.097	0.011
208	17.33	0.17	0.108	(0.207)	0.097	0.011
209	17.42	0.17	0.108	(0.206)	0.097	0.011
210	17.50	0.17	0.108	(0.205)	0.097	0.011
211	17.58	0.17	0.108	(0.204)	0.097	0.011
212	17.67	0.17	0.108	(0.203)	0.097	0.011
213	17.75	0.17	0.108	(0.202)	0.097	0.011
214	17.83	0.13	0.086	(0.201)	0.078	0.009
215	17.92	0.13	0.086	(0.200)	0.078	0.009
216	18.00	0.13	0.086	(0.199)	0.078	0.009
217	18.08	0.13	0.086	(0.198)	0.078	0.009
218	18.17	0.13	0.086	(0.197)	0.078	0.009
219	18.25	0.13	0.086	(0.196)	0.078	0.009
220	18.33	0.13	0.086	(0.195)	0.078	0.009
221	18.42	0.13	0.086	(0.194)	0.078	0.009
222	18.50	0.13	0.086	(0.193)	0.078	0.009
223	18.58	0.10	0.065	(0.192)	0.058	0.006
224	18.67	0.10	0.065	(0.191)	0.058	0.006
225	18.75	0.10	0.065	(0.190)	0.058	0.006
226	18.83	0.07	0.043	(0.189)	0.039	0.004
227	18.92	0.07	0.043	(0.188)	0.039	0.004
228	19.00	0.07	0.043	(0.188)	0.039	0.004
229	19.08	0.10	0.065	(0.187)	0.058	0.006
230	19.17	0.10	0.065	(0.186)	0.058	0.006
231	19.25	0.10	0.065	(0.185)	0.058	0.006
232	19.33	0.13	0.086	(0.184)	0.078	0.009
233	19.42	0.13	0.086	(0.183)	0.078	0.009
234	19.50	0.13	0.086	(0.182)	0.078	0.009
235	19.58	0.10	0.065	(0.182)	0.058	0.006
236	19.67	0.10	0.065	(0.181)	0.058	0.006
237	19.75	0.10	0.065	(0.180)	0.058	0.006
238	19.83	0.07	0.043	(0.179)	0.039	0.004
239	19.92	0.07	0.043	(0.178)	0.039	0.004
240	20.00	0.07	0.043	(0.178)	0.039	0.004

241	20.08	0.10	0.065	(0.177)	0.058	0.006
242	20.17	0.10	0.065	(0.176)	0.058	0.006
243	20.25	0.10	0.065	(0.175)	0.058	0.006
244	20.33	0.10	0.065	(0.174)	0.058	0.006
245	20.42	0.10	0.065	(0.174)	0.058	0.006
246	20.50	0.10	0.065	(0.173)	0.058	0.006
247	20.58	0.10	0.065	(0.172)	0.058	0.006
248	20.67	0.10	0.065	(0.171)	0.058	0.006
249	20.75	0.10	0.065	(0.171)	0.058	0.006
250	20.83	0.07	0.043	(0.170)	0.039	0.004
251	20.92	0.07	0.043	(0.169)	0.039	0.004
252	21.00	0.07	0.043	(0.169)	0.039	0.004
253	21.08	0.10	0.065	(0.168)	0.058	0.006
254	21.17	0.10	0.065	(0.167)	0.058	0.006
255	21.25	0.10	0.065	(0.167)	0.058	0.006
256	21.33	0.07	0.043	(0.166)	0.039	0.004
257	21.42	0.07	0.043	(0.165)	0.039	0.004
258	21.50	0.07	0.043	(0.165)	0.039	0.004
259	21.58	0.10	0.065	(0.164)	0.058	0.006
260	21.67	0.10	0.065	(0.164)	0.058	0.006
261	21.75	0.10	0.065	(0.163)	0.058	0.006
262	21.83	0.07	0.043	(0.163)	0.039	0.004
263	21.92	0.07	0.043	(0.162)	0.039	0.004
264	22.00	0.07	0.043	(0.161)	0.039	0.004
265	22.08	0.10	0.065	(0.161)	0.058	0.006
266	22.17	0.10	0.065	(0.160)	0.058	0.006
267	22.25	0.10	0.065	(0.160)	0.058	0.006
268	22.33	0.07	0.043	(0.159)	0.039	0.004
269	22.42	0.07	0.043	(0.159)	0.039	0.004
270	22.50	0.07	0.043	(0.158)	0.039	0.004
271	22.58	0.07	0.043	(0.158)	0.039	0.004
272	22.67	0.07	0.043	(0.157)	0.039	0.004
273	22.75	0.07	0.043	(0.157)	0.039	0.004
274	22.83	0.07	0.043	(0.157)	0.039	0.004
275	22.92	0.07	0.043	(0.156)	0.039	0.004
276	23.00	0.07	0.043	(0.156)	0.039	0.004
277	23.08	0.07	0.043	(0.155)	0.039	0.004
278	23.17	0.07	0.043	(0.155)	0.039	0.004

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279  23.25     0.07      0.043       (  0.155)       0.039        0.004
280  23.33     0.07      0.043       (  0.155)       0.039        0.004
281  23.42     0.07      0.043       (  0.154)       0.039        0.004
282  23.50     0.07      0.043       (  0.154)       0.039        0.004
283  23.58     0.07      0.043       (  0.154)       0.039        0.004
284  23.67     0.07      0.043       (  0.153)       0.039        0.004
285  23.75     0.07      0.043       (  0.153)       0.039        0.004
286  23.83     0.07      0.043       (  0.153)       0.039        0.004
287  23.92     0.07      0.043       (  0.153)       0.039        0.004
288  24.00     0.07      0.043       (  0.153)       0.039        0.004
            (Loss Rate Not Used)
    Sum =     100.0                                    Sum =    20.2
     Flood volume = Effective rainfall      1.68(In)
      times area       1.9(Ac.)/[(In)/(Ft.)] =       0.3(Ac.Ft)
     Total soil loss =      3.71(In)
     Total soil loss =     0.596(Ac.Ft)
     Total rainfall =      5.39(In)
     Flood volume =       11790.0 Cubic Feet
     Total soil loss =       25971.7 Cubic Feet
     ---------------------------------------------------------------------
      Peak flow rate of this hydrograph =      0.916(CFS)
     ---------------------------------------------------------------------
     +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                         24 - H O U R    S T O R M
                    R u n o f f      H y d r o g r a p h
     ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

     ---------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
 ------------------------------------------------------------------------
   0+ 5       0.0000      0.01  Q          |         |         |         |
   0+10       0.0001      0.01  Q          |         |         |         |
   0+15       0.0002      0.01  Q          |         |         |         |
   0+20       0.0002      0.01  Q          |         |         |         |
   0+25       0.0003      0.01  Q          |         |         |         |
   0+30       0.0004      0.01  Q          |         |         |         |
   0+35       0.0005      0.01  Q          |         |         |         |
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0+40	0.0006	0.01	Q	|	|	|	|
0+45	0.0007	0.01	Q	|	|	|	|
0+50	0.0008	0.02	Q	|	|	|	|
0+55	0.0009	0.02	Q	|	|	|	|
1+ 0	0.0010	0.02	Q	|	|	|	|
1+ 5	0.0011	0.01	Q	|	|	|	|
1+10	0.0012	0.01	Q	|	|	|	|
1+15	0.0013	0.01	Q	|	|	|	|
1+20	0.0014	0.01	Q	|	|	|	|
1+25	0.0015	0.01	Q	|	|	|	|
1+30	0.0015	0.01	Q	|	|	|	|
1+35	0.0016	0.01	Q	|	|	|	|
1+40	0.0017	0.01	Q	|	|	|	|
1+45	0.0018	0.01	Q	|	|	|	|
1+50	0.0019	0.02	Q	|	|	|	|
1+55	0.0020	0.02	Q	|	|	|	|
2+ 0	0.0021	0.02	Q	|	|	|	|
2+ 5	0.0023	0.02	Q	|	|	|	|
2+10	0.0024	0.02	Q	|	|	|	|
2+15	0.0025	0.02	Q	|	|	|	|
2+20	0.0026	0.02	Q	|	|	|	|
2+25	0.0027	0.02	Q	|	|	|	|
2+30	0.0028	0.02	Q	|	|	|	|
2+35	0.0030	0.02	Q	|	|	|	|
2+40	0.0031	0.02	Q	|	|	|	|
2+45	0.0033	0.02	Q	|	|	|	|
2+50	0.0034	0.02	Q	|	|	|	|
2+55	0.0036	0.02	Q	|	|	|	|
3+ 0	0.0037	0.02	Q	|	|	|	|
3+ 5	0.0038	0.02	Q	|	|	|	|
3+10	0.0040	0.02	Q	|	|	|	|
3+15	0.0041	0.02	Q	|	|	|	|
3+20	0.0043	0.02	Q	|	|	|	|
3+25	0.0044	0.02	Q	|	|	|	|
3+30	0.0046	0.02	Q	|	|	|	|
3+35	0.0047	0.02	Q	|	|	|	|
3+40	0.0049	0.02	Q	|	|	|	|
3+45	0.0050	0.02	Q	|	|	|	|

3+50	0.0052	0.02	Q				
3+55	0.0053	0.03	Q				
4+ 0	0.0055	0.03	Q				
4+ 5	0.0057	0.03	Q				
4+10	0.0059	0.03	Q				
4+15	0.0060	0.03	Q				
4+20	0.0062	0.03	Q				
4+25	0.0064	0.03	Q				
4+30	0.0066	0.03	Q				
4+35	0.0068	0.03	QV				
4+40	0.0070	0.03	QV				
4+45	0.0072	0.03	QV				
4+50	0.0075	0.03	QV				
4+55	0.0077	0.03	QV				
5+ 0	0.0079	0.03	QV				
5+ 5	0.0081	0.03	QV				
5+10	0.0083	0.03	QV				
5+15	0.0085	0.03	QV				
5+20	0.0087	0.03	QV				
5+25	0.0089	0.03	QV				
5+30	0.0091	0.03	QV				
5+35	0.0093	0.03	QV				
5+40	0.0095	0.03	QV				
5+45	0.0097	0.03	QV				
5+50	0.0100	0.03	QV				
5+55	0.0102	0.03	QV				
6+ 0	0.0104	0.03	QV				
6+ 5	0.0107	0.04	QV				
6+10	0.0110	0.04	QV				
6+15	0.0112	0.04	QV				
6+20	0.0115	0.04	QV				
6+25	0.0117	0.04	QV				
6+30	0.0120	0.04	QV				
6+35	0.0123	0.04	QV				
6+40	0.0126	0.04	QV				
6+45	0.0129	0.04	QV				
6+50	0.0131	0.04	QV				
6+55	0.0134	0.04	QV				

7+ 0	0.0137	0.04	Q V	|	|	|	|
7+ 5	0.0140	0.04	Q V	|	|	|	|
7+10	0.0143	0.04	Q V	|	|	|	|
7+15	0.0146	0.04	Q V	|	|	|	|
7+20	0.0149	0.05	Q V	|	|	|	|
7+25	0.0152	0.05	Q V	|	|	|	|
7+30	0.0155	0.05	Q V	|	|	|	|
7+35	0.0159	0.05	Q V	|	|	|	|
7+40	0.0162	0.05	Q V	|	|	|	|
7+45	0.0166	0.05	Q V	|	|	|	|
7+50	0.0169	0.05	Q V	|	|	|	|
7+55	0.0173	0.05	Q V	|	|	|	|
8+ 0	0.0177	0.05	Q V	|	|	|	|
8+ 5	0.0181	0.06	Q V	|	|	|	|
8+10	0.0185	0.06	Q V	|	|	|	|
8+15	0.0190	0.06	Q V	|	|	|	|
8+20	0.0194	0.06	Q V	|	|	|	|
8+25	0.0198	0.06	Q V	|	|	|	|
8+30	0.0203	0.06	Q V	|	|	|	|
8+35	0.0207	0.07	Q V	|	|	|	|
8+40	0.0212	0.07	Q V	|	|	|	|
8+45	0.0217	0.07	Q V	|	|	|	|
8+50	0.0221	0.07	Q V	|	|	|	|
8+55	0.0226	0.07	Q V	|	|	|	|
9+ 0	0.0231	0.07	Q V	|	|	|	|
9+ 5	0.0240	0.12	Q V	|	|	|	|
9+10	0.0249	0.14	Q V	|	|	|	|
9+15	0.0259	0.14	Q V	|	|	|	|
9+20	0.0271	0.18	Q V	|	|	|	|
9+25	0.0284	0.19	Q V	|	|	|	|
9+30	0.0297	0.19	Q V	|	|	|	|
9+35	0.0313	0.23	Q V	|	|	|	|
9+40	0.0329	0.24	Q V	|	|	|	|
9+45	0.0346	0.24	Q V	|	|	|	|
9+50	0.0365	0.28	|Q V	|	|	|	|
9+55	0.0385	0.29	|Q V	|	|	|	|
10+ 0	0.0406	0.29	|Q V	|	|	|	|
10+ 5	0.0413	0.11	Q V	|	|	|	|

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10+10       0.0418      0.06  Q     V   |          |          |          |
10+15       0.0422      0.06  Q     V   |          |          |          |
10+20       0.0426      0.06  Q     V   |          |          |          |
10+25       0.0431      0.06  Q     V   |          |          |          |
10+30       0.0435      0.06  Q     V   |          |          |          |
10+35       0.0449      0.20  Q     V   |          |          |          |
10+40       0.0465      0.23  Q     V   |          |          |          |
10+45       0.0481      0.24  Q      V  |          |          |          |
10+50       0.0498      0.24  Q      V  |          |          |          |
10+55       0.0514      0.24  Q      V  |          |          |          |
11+ 0       0.0531      0.25  Q      V  |          |          |          |
11+ 5       0.0546      0.22  Q       V |          |          |          |
11+10       0.0561      0.21  Q       V |          |          |          |
11+15       0.0575      0.21  Q       V |          |          |          |
11+20       0.0590      0.22  Q       V |          |          |          |
11+25       0.0605      0.22  Q       V |          |          |          |
11+30       0.0620      0.22  Q        V|          |          |          |
11+35       0.0631      0.16  Q        V|          |          |          |
11+40       0.0641      0.14  Q        V|          |          |          |
11+45       0.0651      0.15  Q        V|          |          |          |
11+50       0.0664      0.18  Q        V|          |          |          |
11+55       0.0677      0.19  Q         V          |          |          |
12+ 0       0.0691      0.20  Q         V          |          |          |
12+ 5       0.0720      0.43  |Q        V          |          |          |
12+10       0.0754      0.50  |Q        |V         |          |          |
12+15       0.0789      0.50  |Q        |V         |          |          |
12+20       0.0826      0.53  | Q       | V        |          |          |
12+25       0.0863      0.55  | Q       | V        |          |          |
12+30       0.0901      0.55  | Q       |  V       |          |          |
12+35       0.0944      0.62  | Q       |  V       |          |          |
12+40       0.0987      0.64  | Q       |   V      |          |          |
12+45       0.1032      0.64  | Q       |    V     |          |          |
12+50       0.1078      0.68  | Q       |    V     |          |          |
12+55       0.1126      0.69  | Q       |     V    |          |          |
13+ 0       0.1173      0.69  | Q       |      V   |          |          |
13+ 5       0.1232      0.86  |  Q      |       V  |          |          |
13+10       0.1295      0.91  |  Q      |        V |          |          |
13+15       0.1357      0.91  |  Q      |         V|          |          |
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13+20       0.1420      0.91  |  Q      |          V          |          |
13+25       0.1483      0.91  |  Q      |          |V         |          |
13+30       0.1546      0.92  |  Q      |          | V        |          |
13+35       0.1584      0.56  | Q       |          |  V       |          |
13+40       0.1616      0.46  |Q        |          |  V       |          |
13+45       0.1648      0.46  |Q        |          |   V      |          |
13+50       0.1680      0.47  |Q        |          |   V      |          |
13+55       0.1712      0.47  |Q        |          |    V     |          |
14+ 0       0.1745      0.47  |Q        |          |    V     |          |
14+ 5       0.1786      0.60  | Q       |          |     V    |          |
14+10       0.1831      0.64  | Q       |          |      V   |          |
14+15       0.1875      0.65  | Q       |          |      V   |          |
14+20       0.1917      0.62  | Q       |          |       V  |          |
14+25       0.1959      0.61  | Q       |          |       V  |          |
14+30       0.2001      0.61  | Q       |          |        V |          |
14+35       0.2044      0.61  | Q       |          |         V          |
14+40       0.2086      0.62  | Q       |          |         V          |
14+45       0.2129      0.62  | Q       |          |          |V        |
14+50       0.2169      0.59  | Q       |          |          | V       |
14+55       0.2209      0.58  | Q       |          |          | V       |
15+ 0       0.2249      0.58  | Q       |          |          |  V      |
15+ 5       0.2287      0.55  | Q       |          |          |  V      |
15+10       0.2325      0.55  | Q       |          |          |   V     |
15+15       0.2363      0.55  | Q       |          |          |   V     |
15+20       0.2399      0.52  | Q       |          |          |    V    |
15+25       0.2434      0.51  | Q       |          |          |    V    |
15+30       0.2469      0.51  | Q       |          |          |     V   |
15+35       0.2496      0.38  |Q        |          |          |     V   |
15+40       0.2520      0.35  |Q        |          |          |      V  |
15+45       0.2544      0.35  |Q        |          |          |      V  |
15+50       0.2569      0.36  |Q        |          |          |      V  |
15+55       0.2593      0.36  |Q        |          |          |       V |
16+ 0       0.2618      0.36  |Q        |          |          |       V |
16+ 5       0.2624      0.09  Q         |          |          |       V |
16+10       0.2625      0.02  Q         |          |          |       V |
16+15       0.2627      0.02  Q         |          |          |       V |
16+20       0.2628      0.02  Q         |          |          |       V |
16+25       0.2629      0.02  Q         |          |          |       V |
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16+30	0.2630	0.02	Q	|	|	|	V |
16+35	0.2631	0.01	Q	|	|	|	V |
16+40	0.2632	0.01	Q	|	|	|	V |
16+45	0.2633	0.01	Q	|	|	|	V |
16+50	0.2634	0.01	Q	|	|	|	V |
16+55	0.2634	0.01	Q	|	|	|	V |
17+ 0	0.2635	0.01	Q	|	|	|	V |
17+ 5	0.2637	0.02	Q	|	|	|	V |
17+10	0.2638	0.02	Q	|	|	|	V |
17+15	0.2640	0.02	Q	|	|	|	V|
17+20	0.2641	0.02	Q	|	|	|	V|
17+25	0.2642	0.02	Q	|	|	|	V|
17+30	0.2644	0.02	Q	|	|	|	V|
17+35	0.2645	0.02	Q	|	|	|	V|
17+40	0.2647	0.02	Q	|	|	|	V|
17+45	0.2648	0.02	Q	|	|	|	V|
17+50	0.2649	0.02	Q	|	|	|	V|
17+55	0.2651	0.02	Q	|	|	|	V|
18+ 0	0.2652	0.02	Q	|	|	|	V|
18+ 5	0.2653	0.02	Q	|	|	|	V|
18+10	0.2654	0.02	Q	|	|	|	V|
18+15	0.2655	0.02	Q	|	|	|	V|
18+20	0.2656	0.02	Q	|	|	|	V|
18+25	0.2658	0.02	Q	|	|	|	V|
18+30	0.2659	0.02	Q	|	|	|	V|
18+35	0.2660	0.01	Q	|	|	|	V|
18+40	0.2660	0.01	Q	|	|	|	V|
18+45	0.2661	0.01	Q	|	|	|	V|
18+50	0.2662	0.01	Q	|	|	|	V|
18+55	0.2663	0.01	Q	|	|	|	V|
19+ 0	0.2663	0.01	Q	|	|	|	V|
19+ 5	0.2664	0.01	Q	|	|	|	V|
19+10	0.2665	0.01	Q	|	|	|	V|
19+15	0.2666	0.01	Q	|	|	|	V|
19+20	0.2667	0.02	Q	|	|	|	V|
19+25	0.2668	0.02	Q	|	|	|	V|
19+30	0.2669	0.02	Q	|	|	|	V|
19+35	0.2670	0.01	Q	|	|	|	V|

19+40	0.2671	0.01	Q	|	|	|	V|
19+45	0.2672	0.01	Q	|	|	|	V|
19+50	0.2672	0.01	Q	|	|	|	V|
19+55	0.2673	0.01	Q	|	|	|	V|
20+ 0	0.2674	0.01	Q	|	|	|	V|
20+ 5	0.2674	0.01	Q	|	|	|	V|
20+10	0.2675	0.01	Q	|	|	|	V|
20+15	0.2676	0.01	Q	|	|	|	V|
20+20	0.2677	0.01	Q	|	|	|	V|
20+25	0.2678	0.01	Q	|	|	|	V|
20+30	0.2679	0.01	Q	|	|	|	V|
20+35	0.2680	0.01	Q	|	|	|	V|
20+40	0.2680	0.01	Q	|	|	|	V|
20+45	0.2681	0.01	Q	|	|	|	V|
20+50	0.2682	0.01	Q	|	|	|	V|
20+55	0.2682	0.01	Q	|	|	|	V|
21+ 0	0.2683	0.01	Q	|	|	|	V|
21+ 5	0.2684	0.01	Q	|	|	|	V|
21+10	0.2685	0.01	Q	|	|	|	V|
21+15	0.2686	0.01	Q	|	|	|	V|
21+20	0.2686	0.01	Q	|	|	|	V|
21+25	0.2687	0.01	Q	|	|	|	V|
21+30	0.2687	0.01	Q	|	|	|	V|
21+35	0.2688	0.01	Q	|	|	|	V|
21+40	0.2689	0.01	Q	|	|	|	V|
21+45	0.2690	0.01	Q	|	|	|	V|
21+50	0.2691	0.01	Q	|	|	|	V|
21+55	0.2691	0.01	Q	|	|	|	V|
22+ 0	0.2692	0.01	Q	|	|	|	V|
22+ 5	0.2693	0.01	Q	|	|	|	V|
22+10	0.2693	0.01	Q	|	|	|	V|
22+15	0.2694	0.01	Q	|	|	|	V|
22+20	0.2695	0.01	Q	|	|	|	V|
22+25	0.2695	0.01	Q	|	|	|	V|
22+30	0.2696	0.01	Q	|	|	|	V|
22+35	0.2697	0.01	Q	|	|	|	V|
22+40	0.2697	0.01	Q	|	|	|	V|
22+45	0.2698	0.01	Q	|	|	|	V|

```
   22+50       0.2698      0.01  Q          |          |          |         V|
   22+55       0.2699      0.01  Q          |          |          |         V|
   23+ 0       0.2700      0.01  Q          |          |          |         V|
   23+ 5       0.2700      0.01  Q          |          |          |         V|
   23+10       0.2701      0.01  Q          |          |          |         V|
   23+15       0.2701      0.01  Q          |          |          |         V|
   23+20       0.2702      0.01  Q          |          |          |         V|
   23+25       0.2702      0.01  Q          |          |          |         V|
   23+30       0.2703      0.01  Q          |          |          |         V|
   23+35       0.2704      0.01  Q          |          |          |         V|
   23+40       0.2704      0.01  Q          |          |          |         V|
   23+45       0.2705      0.01  Q          |          |          |         V|
   23+50       0.2705      0.01  Q          |          |          |         V|
   23+55       0.2706      0.01  Q          |          |          |         V|
   24+ 0       0.2706      0.01  Q          |          |          |         V|
   24+ 5       0.2707      0.00  Q          |          |          |          V
-------------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 5- 100 YR, 1-hr

Drainage Area = 1.55(Ac.) = 0.002 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.55(Ac.) = 0.002 Sq. Mi.
Length along longest watercourse = 220.00(Ft.)
Length along longest watercourse measured to centroid = 110.00(Ft.)
Length along longest watercourse = 0.042 Mi.
Length along longest watercourse measured to centroid = 0.021 Mi.
Difference in elevation = 1.72(Ft.)
Slope along watercourse = 41.2800 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.012 Hr.
Lag time =     0.73 Min.
25% of lag time =     0.18 Min.
40% of lag time =     0.29 Min.
Unit time =     5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.55              0.51                 0.80

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.55              1.61                 2.50

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.514(In)
Area Averaged 100-Year Rainfall =    1.610(In)

Point rain (area averaged) =    1.610(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    1.610(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     1.550           69.00          0.200
 Total Area Entered =      1.55(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306       1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

Slope of intensity-duration curve for a 1 hour storm =0.5500

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	683.689	78.074	1.220
2	0.167	1367.378	21.926	0.343
		Sum = 100.000	Sum=	1.562

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max		Low	Effective (In/Hr)
1	0.08	3.30	0.638	0.306	(	0.574)	0.332
2	0.17	4.20	0.811	0.306	(	0.730)	0.506
3	0.25	4.40	0.850	0.306	(	0.765)	0.544
4	0.33	4.80	0.927	0.306	(	0.8	

U n i t H y d r o g r a p h A n a l y s i s

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Study date 01/03/23 File: VOLT53100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 5- 100 YR, 3-hr

Drainage Area = 1.55(Ac.) = 0.002 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.55(Ac.) = 0.002 Sq. Mi.
Length along longest watercourse = 220.00(Ft.)
Length along longest watercourse measured to centroid = 110.00(Ft.)
Length along longest watercourse = 0.042 Mi.
Length along longest watercourse measured to centroid = 0.021 Mi.
Difference in elevation = 1.72(Ft.)
Slope along watercourse = 41.2800 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.012 Hr.
Lag time =     0.73 Min.
25% of lag time =     0.18 Min.
40% of lag time =     0.29 Min.
Unit time =     5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.55              0.86                  1.34

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.55              2.25                  3.49

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.864(In)
Area Averaged 100-Year Rainfall =    2.250(In)

Point rain (area averaged) =    2.250(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.250(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     1.550           69.00          0.200
 Total Area Entered =      1.55(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306       1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	683.689	78.074	1.220
2	0.167	1367.378	21.926	0.343
			Sum = 100.000 Sum=	1.562

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.351	0.306	(0.316)	0.045
2	0.17	1.30	0.351	0.306	(0.316)	0.045
3	0.25	1.10	0.297	(0.306)	0.267	0.030
4	0.33	1.50	0.405	0.306	(0.364)	0.099
5	0.42	1.50	0.405	0.306	(0.364)	0.099
6	0.50	1.80	0.486	0.306	(0.437)	0.180
7	0.58	1.50	0.405	0.306	(0.364)	0.099
8	0.67	1.80	0.486	0.306	(0.437)	0.180
9	0.75	1.80	0.486	0.306	(0.437)	0.180
10	0.83	1.50	0.405	0.306	(0.364)	0.099
11	0.92	1.60	0.432	0.306	(0.389)	0.126
12	1.00	1.80	0.486	0.306	(0.437)	0.180

```
13   1.08     2.20      0.594          0.306    (  0.535)         0.288
14   1.17     2.20      0.594          0.306    (  0.535)         0.288
15   1.25     2.20      0.594          0.306    (  0.535)         0.288
16   1.33     2.00      0.540          0.306    (  0.486)         0.234
17   1.42     2.60      0.702          0.306    (  0.632)         0.396
18   1.50     2.70      0.729          0.306    (  0.656)         0.423
19   1.58     2.40      0.648          0.306    (  0.583)         0.342
20   1.67     2.70      0.729          0.306    (  0.656)         0.423
21   1.75     3.30      0.891          0.306    (  0.802)         0.585
22   1.83     3.10      0.837          0.306    (  0.753)         0.531
23   1.92     2.90      0.783          0.306    (  0.705)         0.477
24   2.00     3.00      0.810          0.306    (  0.729)         0.504
25   2.08     3.10      0.837          0.306    (  0.753)         0.531
26   2.17     4.20      1.134          0.306    (  1.021)         0.828
27   2.25     5.00      1.350          0.306    (  1.215)         1.044
28   2.33     3.50      0.945          0.306    (  0.850)         0.639
29   2.42     6.80      1.836          0.306    (  1.652)         1.530
30   2.50     7.30      1.971          0.306    (  1.774)         1.665
31   2.58     8.20      2.214          0.306    (  1.993)         1.908
32   2.67     5.90      1.593          0.306    (  1.434)         1.287
33   2.75     2.00      0.540          0.306    (  0.486)         0.234
34   2.83     1.80      0.486          0.306    (  0.437)         0.180
35   2.92     1.80      0.486          0.306    (  0.437)         0.180
36   3.00     0.60      0.162       (  0.306)       0.146         0.016
          (Loss Rate Not Used)
   Sum =     100.0                                    Sum =    16.2
    Flood volume = Effective rainfall      1.35(In)
     times area       1.6(Ac.)/[(In)/(Ft.)] =       0.2(Ac.Ft)
    Total soil loss =      0.90(In)
    Total soil loss =     0.116(Ac.Ft)
    Total rainfall =      2.25(In)
    Flood volume =        7592.5 Cubic Feet
    Total soil loss =        5067.0 Cubic Feet
    ---------------------------------------------------------------------
     Peak flow rate of this hydrograph =      2.899(CFS)
    ---------------------------------------------------------------------
    +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        3 - H O U R    S T O R M
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R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0004	0.06	Q				
0+10	0.0009	0.07	Q				
0+15	0.0012	0.05	Q				
0+20	0.0021	0.13	Q				
0+25	0.0032	0.16	Q				
0+30	0.0049	0.25	|Q				
0+35	0.0062	0.18	QV				
0+40	0.0080	0.25	|Q				
0+45	0.0099	0.28	|QV				
0+50	0.0112	0.18	Q V				
0+55							

U n i t H y d r o g r a p h A n a l y s i s

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Study date 01/03/23 File: VOLT56100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 5- 100 YR, 6-hr

Drainage Area = 1.55(Ac.) = 0.002 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.55(Ac.) = 0.002 Sq. Mi.
Length along longest watercourse = 220.00(Ft.)
Length along longest watercourse measured to centroid = 110.00(Ft.)
Length along longest watercourse = 0.042 Mi.
Length along longest watercourse measured to centroid = 0.021 Mi.
Difference in elevation = 1.72(Ft.)
Slope along watercourse = 41.2800 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.012 Hr.
Lag time =     0.73 Min.
25% of lag time =     0.18 Min.
40% of lag time =     0.29 Min.
Unit time =     5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.55             1.20                 1.86

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.55             2.99                 4.63

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.200(In)
Area Averaged 100-Year Rainfall =    2.990(In)

Point rain (area averaged) =    2.990(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.990(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     1.550           69.00          0.200
 Total Area Entered =      1.55(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306       1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	683.689	78.074	1.220
2	0.167	1367.378	21.926	0.343
		Sum = 100.000	Sum=	1.562

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max		Low	Effective (In/Hr)
1	0.08	0.50	0.179	(0.306)	0.161	0.018
2	0.17	0.60	0.215	(0.306)	0.194	0.022
3	0.25	0.60	0.215	(0.306)	0.194	0.022
4	0.33	0.60	0.215	(0.306)	0.194	0.022
5	0.42	0.60	0.215	(0.306)	0.194	0.022
6	0.50	0.70	0.251	(0.306)	0.226	0.025
7	0.58	0.70	0.251	(0.306)	0.226	0.025
8	0.67	0.70	0.251	(0.306)	0.226	0.025
9	0.75	0.70	0.251	(0.306)	0.226	0.025
10	0.83	0.70	0.251	(0.306)	0.226	0.025
11	0.92	0.70	0.251	(0.306)	0.226	0.025
12	1.00	0.80	0.287	(0.306)	0.258	0.029

13	1.08	0.80	0.287	(0.306)	0.258	0.029
14	1.17	0.80	0.287	(0.306)	0.258	0.029
15	1.25	0.80	0.287	(0.306)	0.258	0.029
16	1.33	0.80	0.287	(0.306)	0.258	0.029
17	1.42	0.80	0.287	(0.306)	0.258	0.029
18	1.50	0.80	0.287	(0.306)	0.258	0.029
19	1.58	0.80	0.287	(0.306)	0.258	0.029
20	1.67	0.80	0.287	(0.306)	0.258	0.029
21	1.75	0.80	0.287	(0.306)	0.258	0.029
22	1.83	0.80	0.287	(0.306)	0.258	0.029
23	1.92	0.80	0.287	(0.306)	0.258	0.029
24	2.00	0.90	0.323	(0.306)	0.291	0.032
25	2.08	0.80	0.287	(0.306)	0.258	0.029
26	2.17	0.90	0.323	(0.306)	0.291	0.032
27	2.25	0.90	0.323	(0.306)	0.291	0.032
28	2.33	0.90	0.323	(0.306)	0.291	0.032
29	2.42	0.90	0.323	(0.306)	0.291	0.032
30	2.50	0.90	0.323	(0.306)	0.291	0.032
31	2.58	0.90	0.323	(0.306)	0.291	0.032
32	2.67	0.90	0.323	(0.306)	0.291	0.032
33	2.75	1.00	0.359	0.306	(0.323)	0.053
34	2.83	1.00	0.359	0.306	(0.323)	0.053
35	2.92	1.00	0.359	0.306	(0.323)	0.053
36	3.00	1.00	0.359	0.306	(0.323)	0.053
37	3.08	1.00	0.359	0.306	(0.323)	0.053
38	3.17	1.10	0.395	0.306	(0.355)	0.089
39	3.25	1.10	0.395	0.306	(0.355)	0.089
40	3.33	1.10	0.395	0.306	(0.355)	0.089
41	3.42	1.20	0.431	0.306	(0.388)	0.125
42	3.50	1.30	0.466	0.306	(0.420)	0.161
43	3.58	1.40	0.502	0.306	(0.452)	0.197
44	3.67	1.40	0.502	0.306	(0.452)	0.197
45	3.75	1.50	0.538	0.306	(0.484)	0.233
46	3.83	1.50	0.538	0.306	(0.484)	0.233
47	3.92	1.60	0.574	0.306	(0.517)	0.268
48	4.00	1.60	0.574	0.306	(0.517)	0.268
49	4.08	1.70	0.610	0.306	(0.549)	0.304
50	4.17	1.80	0.646	0.306	(0.581)	0.340

```
51   4.25     1.90      0.682          0.306    (  0.614)         0.376
52   4.33     2.00      0.718          0.306    (  0.646)         0.412
53   4.42     2.10      0.753          0.306    (  0.678)         0.448
54   4.50     2.10      0.753          0.306    (  0.678)         0.448
55   4.58     2.20      0.789          0.306    (  0.710)         0.484
56   4.67     2.30      0.825          0.306    (  0.743)         0.520
57   4.75     2.40      0.861          0.306    (  0.775)         0.555
58   4.83     2.40      0.861          0.306    (  0.775)         0.555
59   4.92     2.50      0.897          0.306    (  0.807)         0.591
60   5.00     2.60      0.933          0.306    (  0.840)         0.627
61   5.08     3.10      1.112          0.306    (  1.001)         0.807
62   5.17     3.60      1.292          0.306    (  1.163)         0.986
63   5.25     3.90      1.399          0.306    (  1.259)         1.094
64   5.33     4.20      1.507          0.306    (  1.356)         1.201
65   5.42     4.70      1.686          0.306    (  1.518)         1.381
66   5.50     5.60      2.009          0.306    (  1.808)         1.704
67   5.58     1.90      0.682          0.306    (  0.614)         0.376
68   5.67     0.90      0.323       (  0.306)       0.291         0.032
69   5.75     0.60      0.215       (  0.306)       0.194         0.022
70   5.83     0.50      0.179       (  0.306)       0.161         0.018
71   5.92     0.30      0.108       (  0.306)       0.097         0.011
72   6.00     0.20      0.072       (  0.306)       0.065         0.007
          (Loss Rate Not Used)
   Sum =     100.0                                    Sum =    16.4
    Flood volume = Effective rainfall      1.37(In)
     times area       1.6(Ac.)/[(In)/(Ft.)] =       0.2(Ac.Ft)
    Total soil loss =      1.62(In)
    Total soil loss =     0.210(Ac.Ft)
    Total rainfall =      2.99(In)
    Flood volume =        7688.2 Cubic Feet
    Total soil loss =        9135.0 Cubic Feet
    ---------------------------------------------------------------
     Peak flow rate of this hydrograph =      2.552(CFS)
    ---------------------------------------------------------------
    +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        6 - H O U R    S T O R M
                    R u n o f f      H y d r o g r a p h
    ---------------------------------------------------------------
```

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0002	0.02	Q				
0+10	0.0004	0.03	Q				
0+15	0.0006	0.03	Q				
0+20	0.0008	0.03	Q				
0+25	0.0011	0.03	Q				
0+30	0.0013	0.04	Q				
0+35	0.0016	0.04	Q				
0+40	0.0019	0.04	Q				
0+45	0.0021	0.04	Q				
0+50	0.0024	0.04	Q				
0+55	0.0027	0.04	Q				
1+ 0	0.0030	0.04	Q				
1+ 5	0.0033	0.04	Q				
1+10	0.0036	0.04	Q				
1+15	0.0039	0.04	Q				
1+20	0.0042	0.04	Q				
1+25	0.0045	0.04	QV				
1+30	0.0048	0.04	QV				
1+35	0.0051	0.04	QV				
1+40	0.0055	0.04	QV				
1+45	0.0058	0.04	QV				
1+50	0.0061	0.04	QV				
1+55	0.0064	0.04	QV				
2+ 0	0.0067	0.05	QV				
2+ 5	0.0070	0.05	QV				
2+10	0.0074	0.05	QV				
2+15	0.0077	0.05	QV				
2+20	0.0081	0.05	QV				
2+25	0.0084	0.05	QV				
2+30	0.0088	0.05	QV				

U n i t H y d r o g r a p h A n a l y s i s

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Study date 01/03/23 File: VOLT524100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 5- 100 YR, 24-hr

Drainage Area = 1.55(Ac.) = 0.002 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.55(Ac.) = 0.002 Sq. Mi.
Length along longest watercourse = 220.00(Ft.)
Length along longest watercourse measured to centroid = 110.00(Ft.)
Length along longest watercourse = 0.042 Mi.
Length along longest watercourse measured to centroid = 0.021 Mi.
Difference in elevation = 1.72(Ft.)
Slope along watercourse = 41.2800 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.012 Hr.
Lag time =     0.73 Min.
25% of lag time =     0.18 Min.
40% of lag time =     0.29 Min.
Unit time =     5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.55              2.06                 3.19

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.55              5.39                 8.35

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    2.060(In)
Area Averaged 100-Year Rainfall =    5.390(In)

Point rain (area averaged) =    5.390(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    5.390(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     1.550           69.00          0.200
 Total Area Entered =      1.55(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306       1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	683.689	78.074	1.220
2	0.167	1367.378	21.926	0.343
		Sum = 100.000	Sum=	1.562

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.043	(0.542)	0.039	0.004
2	0.17	0.07	0.043	(0.540)	0.039	0.004
3	0.25	0.07	0.043	(0.538)	0.039	0.004
4	0.33	0.10	0.065	(0.536)	0.058	0.006
5	0.42	0.10	0.065	(0.534)	0.058	0.006
6	0.50	0.10	0.065	(0.531)	0.058	0.006
7	0.58	0.10	0.065	(0.529)	0.058	0.006
8	0.67	0.10	0.065	(0.527)	0.058	0.006
9	0.75	0.10	0.065	(0.525)	0.058	0.006
10	0.83	0.13	0.086	(0.523)	0.078	0.009
11	0.92	0.13	0.086	(0.521)	0.078	0.009
12	1.00	0.13	0.086	(0.519)	0.078	0.009

13	1.08	0.10	0.065	(0.517)	0.058	0.006
14	1.17	0.10	0.065	(0.515)	0.058	0.006
15	1.25	0.10	0.065	(0.513)	0.058	0.006
16	1.33	0.10	0.065	(0.511)	0.058	0.006
17	1.42	0.10	0.065	(0.509)	0.058	0.006
18	1.50	0.10	0.065	(0.507)	0.058	0.006
19	1.58	0.10	0.065	(0.505)	0.058	0.006
20	1.67	0.10	0.065	(0.503)	0.058	0.006
21	1.75	0.10	0.065	(0.501)	0.058	0.006
22	1.83	0.13	0.086	(0.499)	0.078	0.009
23	1.92	0.13	0.086	(0.497)	0.078	0.009
24	2.00	0.13	0.086	(0.495)	0.078	0.009
25	2.08	0.13	0.086	(0.493)	0.078	0.009
26	2.17	0.13	0.086	(0.491)	0.078	0.009
27	2.25	0.13	0.086	(0.489)	0.078	0.009
28	2.33	0.13	0.086	(0.487)	0.078	0.009
29	2.42	0.13	0.086	(0.485)	0.078	0.009
30	2.50	0.13	0.086	(0.483)	0.078	0.009
31	2.58	0.17	0.108	(0.481)	0.097	0.011
32	2.67	0.17	0.108	(0.479)	0.097	0.011
33	2.75	0.17	0.108	(0.477)	0.097	0.011
34	2.83	0.17	0.108	(0.475)	0.097	0.011
35	2.92	0.17	0.108	(0.473)	0.097	0.011
36	3.00	0.17	0.108	(0.471)	0.097	0.011
37	3.08	0.17	0.108	(0.469)	0.097	0.011
38	3.17	0.17	0.108	(0.467)	0.097	0.011
39	3.25	0.17	0.108	(0.465)	0.097	0.011
40	3.33	0.17	0.108	(0.463)	0.097	0.011
41	3.42	0.17	0.108	(0.461)	0.097	0.011
42	3.50	0.17	0.108	(0.459)	0.097	0.011
43	3.58	0.17	0.108	(0.457)	0.097	0.011
44	3.67	0.17	0.108	(0.456)	0.097	0.011
45	3.75	0.17	0.108	(0.454)	0.097	0.011
46	3.83	0.20	0.129	(0.452)	0.116	0.013
47	3.92	0.20	0.129	(0.450)	0.116	0.013
48	4.00	0.20	0.129	(0.448)	0.116	0.013
49	4.08	0.20	0.129	(0.446)	0.116	0.013
50	4.17	0.20	0.129	(0.444)	0.116	0.013

51	4.25	0.20	0.129	(0.442)	0.116	0.013
52	4.33	0.23	0.151	(0.440)	0.136	0.015
53	4.42	0.23	0.151	(0.438)	0.136	0.015
54	4.50	0.23	0.151	(0.437)	0.136	0.015
55	4.58	0.23	0.151	(0.435)	0.136	0.015
56	4.67	0.23	0.151	(0.433)	0.136	0.015
57	4.75	0.23	0.151	(0.431)	0.136	0.015
58	4.83	0.27	0.172	(0.429)	0.155	0.017
59	4.92	0.27	0.172	(0.427)	0.155	0.017
60	5.00	0.27	0.172	(0.425)	0.155	0.017
61	5.08	0.20	0.129	(0.424)	0.116	0.013
62	5.17	0.20	0.129	(0.422)	0.116	0.013
63	5.25	0.20	0.129	(0.420)	0.116	0.013
64	5.33	0.23	0.151	(0.418)	0.136	0.015
65	5.42	0.23	0.151	(0.416)	0.136	0.015
66	5.50	0.23	0.151	(0.414)	0.136	0.015
67	5.58	0.27	0.172	(0.413)	0.155	0.017
68	5.67	0.27	0.172	(0.411)	0.155	0.017
69	5.75	0.27	0.172	(0.409)	0.155	0.017
70	5.83	0.27	0.172	(0.407)	0.155	0.017
71	5.92	0.27	0.172	(0.405)	0.155	0.017
72	6.00	0.27	0.172	(0.404)	0.155	0.017
73	6.08	0.30	0.194	(0.402)	0.175	0.019
74	6.17	0.30	0.194	(0.400)	0.175	0.019
75	6.25	0.30	0.194	(0.398)	0.175	0.019
76	6.33	0.30	0.194	(0.396)	0.175	0.019
77	6.42	0.30	0.194	(0.395)	0.175	0.019
78	6.50	0.30	0.194	(0.393)	0.175	0.019
79	6.58	0.33	0.216	(0.391)	0.194	0.022
80	6.67	0.33	0.216	(0.389)	0.194	0.022
81	6.75	0.33	0.216	(0.388)	0.194	0.022
82	6.83	0.33	0.216	(0.386)	0.194	0.022
83	6.92	0.33	0.216	(0.384)	0.194	0.022
84	7.00	0.33	0.216	(0.382)	0.194	0.022
85	7.08	0.33	0.216	(0.381)	0.194	0.022
86	7.17	0.33	0.216	(0.379)	0.194	0.022
87	7.25	0.33	0.216	(0.377)	0.194	0.022
88	7.33	0.37	0.237	(0.375)	0.213	0.024

89	7.42	0.37	0.237	(0.374)	0.213	0.024
90	7.50	0.37	0.237	(0.372)	0.213	0.024
91	7.58	0.40	0.259	(0.370)	0.233	0.026
92	7.67	0.40	0.259	(0.369)	0.233	0.026
93	7.75	0.40	0.259	(0.367)	0.233	0.026
94	7.83	0.43	0.280	(0.365)	0.252	0.028
95	7.92	0.43	0.280	(0.363)	0.252	0.028
96	8.00	0.43	0.280	(0.362)	0.252	0.028
97	8.08	0.50	0.323	(0.360)	0.291	0.032
98	8.17	0.50	0.323	(0.358)	0.291	0.032
99	8.25	0.50	0.323	(0.357)	0.291	0.032
100	8.33	0.50	0.323	(0.355)	0.291	0.032
101	8.42	0.50	0.323	(0.353)	0.291	0.032
102	8.50	0.50	0.323	(0.352)	0.291	0.032
103	8.58	0.53	0.345	(0.350)	0.310	0.034
104	8.67	0.53	0.345	(0.348)	0.310	0.034
105	8.75	0.53	0.345	(0.347)	0.310	0.034
106	8.83	0.57	0.367	(0.345)	0.330	0.037
107	8.92	0.57	0.367	(0.344)	0.330	0.037
108	9.00	0.57	0.367	(0.342)	0.330	0.037
109	9.08	0.63	0.410	0.340	(0.369)	0.069
110	9.17	0.63	0.410	0.339	(0.369)	0.071
111	9.25	0.63	0.410	0.337	(0.369)	0.073
112	9.33	0.67	0.431	0.335	(0.388)	0.096
113	9.42	0.67	0.431	0.334	(0.388)	0.097
114	9.50	0.67	0.431	0.332	(0.388)	0.099
115	9.58	0.70	0.453	0.331	(0.407)	0.122
116	9.67	0.70	0.453	0.329	(0.407)	0.124
117	9.75	0.70	0.453	0.328	(0.407)	0.125
118	9.83	0.73	0.474	0.326	(0.427)	0.148
119	9.92	0.73	0.474	0.324	(0.427)	0.150
120	10.00	0.73	0.474	0.323	(0.427)	0.152
121	10.08	0.50	0.323	(0.321)	0.291	0.032
122	10.17	0.50	0.323	(0.320)	0.291	0.032
123	10.25	0.50	0.323	(0.318)	0.291	0.032
124	10.33	0.50	0.323	(0.317)	0.291	0.032
125	10.42	0.50	0.323	(0.315)	0.291	0.032
126	10.50	0.50	0.323	(0.314)	0.291	0.032

127	10.58	0.67	0.431	0.312	(	0.388)	0.119
128	10.67	0.67	0.431	0.310	(	0.388)	0.121
129	10.75	0.67	0.431	0.309	(	0.388)	0.122
130	10.83	0.67	0.431	0.307	(	0.388)	0.124
131	10.92	0.67	0.431	0.306	(	0.388)	0.125
132	11.00	0.67	0.431	0.304	(	0.388)	0.127
133	11.08	0.63	0.410	0.303	(	0.369)	0.107
134	11.17	0.63	0.410	0.301	(	0.369)	0.108
135	11.25	0.63	0.410	0.300	(	0.369)	0.110
136	11.33	0.63	0.410	0.298	(	0.369)	0.111
137	11.42	0.63	0.410	0.297	(	0.369)	0.113
138	11.50	0.63	0.410	0.296	(	0.369)	0.114
139	11.58	0.57	0.367	0.294	(	0.330)	0.072
140	11.67	0.57	0.367	0.293	(	0.330)	0.074
141	11.75	0.57	0.367	0.291	(	0.330)	0.075
142	11.83	0.60	0.388	0.290	(	0.349)	0.098
143	11.92	0.60	0.388	0.288	(	0.349)	0.100
144	12.00	0.60	0.388	0.287	(	0.349)	0.101
145	12.08	0.83	0.539	0.285	(	0.485)	0.254
146	12.17	0.83	0.539	0.284	(	0.485)	0.255
147	12.25	0.83	0.539	0.283	(	0.485)	0.256
148	12.33	0.87	0.561	0.281	(	0.505)	0.279
149	12.42	0.87	0.561	0.280	(	0.505)	0.281
150	12.50	0.87	0.561	0.278	(	0.505)	0.282
151	12.58	0.93	0.604	0.277	(	0.543)	0.327
152	12.67	0.93	0.604	0.275	(	0.543)	0.328
153	12.75	0.93	0.604	0.274	(	0.543)	0.330
154	12.83	0.97	0.625	0.273	(	0.563)	0.353
155	12.92	0.97	0.625	0.271	(	0.563)	0.354
156	13.00	0.97	0.625	0.270	(	0.563)	0.355
157	13.08	1.13	0.733	0.269	(	0.660)	0.464
158	13.17	1.13	0.733	0.267	(	0.660)	0.466
159	13.25	1.13	0.733	0.266	(	0.660)	0.467
160	13.33	1.13	0.733	0.265	(	0.660)	0.469
161	13.42	1.13	0.733	0.263	(	0.660)	0.470
162	13.50	1.13	0.733	0.262	(	0.660)	0.471
163	13.58	0.77	0.496	0.261	(	0.446)	0.235
164	13.67	0.77	0.496	0.259	(	0.446)	0.237

165	13.75	0.77	0.496	0.258	(0.446)	0.238
166	13.83	0.77	0.496	0.257	(0.446)	0.239
167	13.92	0.77	0.496	0.255	(0.446)	0.241
168	14.00	0.77	0.496	0.254	(0.446)	0.242
169	14.08	0.90	0.582	0.253	(0.524)	0.329
170	14.17	0.90	0.582	0.251	(0.524)	0.331
171	14.25	0.90	0.582	0.250	(0.524)	0.332
172	14.33	0.87	0.561	0.249	(0.505)	0.312
173	14.42	0.87	0.561	0.248	(0.505)	0.313
174	14.50	0.87	0.561	0.246	(0.505)	0.314
175	14.58	0.87	0.561	0.245	(0.505)	0.316
176	14.67	0.87	0.561	0.244	(0.505)	0.317
177	14.75	0.87	0.561	0.242	(0.505)	0.318
178	14.83	0.83	0.539	0.241	(0.485)	0.298
179	14.92	0.83	0.539	0.240	(0.485)	0.299
180	15.00	0.83	0.539	0.239	(0.485)	0.300
181	15.08	0.80	0.517	0.238	(0.466)	0.280
182	15.17	0.80	0.517	0.236	(0.466)	0.281
183	15.25	0.80	0.517	0.235	(0.466)	0.282
184	15.33	0.77	0.496	0.234	(0.446)	0.262
185	15.42	0.77	0.496	0.233	(0.446)	0.263
186	15.50	0.77	0.496	0.232	(0.446)	0.264
187	15.58	0.63	0.410	0.230	(0.369)	0.179
188	15.67	0.63	0.410	0.229	(0.369)	0.180
189	15.75	0.63	0.410	0.228	(0.369)	0.182
190	15.83	0.63	0.410	0.227	(0.369)	0.183
191	15.92	0.63	0.410	0.226	(0.369)	0.184
192	16.00	0.63	0.410	0.224	(0.369)	0.185
193	16.08	0.13	0.086	(0.223)	0.078	0.009
194	16.17	0.13	0.086	(0.222)	0.078	0.009
195	16.25	0.13	0.086	(0.221)	0.078	0.009
196	16.33	0.13	0.086	(0.220)	0.078	0.009
197	16.42	0.13	0.086	(0.219)	0.078	0.009
198	16.50	0.13	0.086	(0.218)	0.078	0.009
199	16.58	0.10	0.065	(0.217)	0.058	0.006
200	16.67	0.10	0.065	(0.215)	0.058	0.006
201	16.75	0.10	0.065	(0.214)	0.058	0.006
202	16.83	0.10	0.065	(0.213)	0.058	0.006

203	16.92	0.10	0.065	(0.212)	0.058	0.006
204	17.00	0.10	0.065	(0.211)	0.058	0.006
205	17.08	0.17	0.108	(0.210)	0.097	0.011
206	17.17	0.17	0.108	(0.209)	0.097	0.011
207	17.25	0.17	0.108	(0.208)	0.097	0.011
208	17.33	0.17	0.108	(0.207)	0.097	0.011
209	17.42	0.17	0.108	(0.206)	0.097	0.011
210	17.50	0.17	0.108	(0.205)	0.097	0.011
211	17.58	0.17	0.108	(0.204)	0.097	0.011
212	17.67	0.17	0.108	(0.203)	0.097	0.011
213	17.75	0.17	0.108	(0.202)	0.097	0.011
214	17.83	0.13	0.086	(0.201)	0.078	0.009
215	17.92	0.13	0.086	(0.200)	0.078	0.009
216	18.00	0.13	0.086	(0.199)	0.078	0.009
217	18.08	0.13	0.086	(0.198)	0.078	0.009
218	18.17	0.13	0.086	(0.197)	0.078	0.009
219	18.25	0.13	0.086	(0.196)	0.078	0.009
220	18.33	0.13	0.086	(0.195)	0.078	0.009
221	18.42	0.13	0.086	(0.194)	0.078	0.009
222	18.50	0.13	0.086	(0.193)	0.078	0.009
223	18.58	0.10	0.065	(0.192)	0.058	0.006
224	18.67	0.10	0.065	(0.191)	0.058	0.006
225	18.75	0.10	0.065	(0.190)	0.058	0.006
226	18.83	0.07	0.043	(0.189)	0.039	0.004
227	18.92	0.07	0.043	(0.188)	0.039	0.004
228	19.00	0.07	0.043	(0.188)	0.039	0.004
229	19.08	0.10	0.065	(0.187)	0.058	0.006
230	19.17	0.10	0.065	(0.186)	0.058	0.006
231	19.25	0.10	0.065	(0.185)	0.058	0.006
232	19.33	0.13	0.086	(0.184)	0.078	0.009
233	19.42	0.13	0.086	(0.183)	0.078	0.009
234	19.50	0.13	0.086	(0.182)	0.078	0.009
235	19.58	0.10	0.065	(0.182)	0.058	0.006
236	19.67	0.10	0.065	(0.181)	0.058	0.006
237	19.75	0.10	0.065	(0.180)	0.058	0.006
238	19.83	0.07	0.043	(0.179)	0.039	0.004
239	19.92	0.07	0.043	(0.178)	0.039	0.004
240	20.00	0.07	0.043	(0.178)	0.039	0.004

241	20.08	0.10	0.065	(0.177)	0.058	0.006
242	20.17	0.10	0.065	(0.176)	0.058	0.006
243	20.25	0.10	0.065	(0.175)	0.058	0.006
244	20.33	0.10	0.065	(0.174)	0.058	0.006
245	20.42	0.10	0.065	(0.174)	0.058	0.006
246	20.50	0.10	0.065	(0.173)	0.058	0.006
247	20.58	0.10	0.065	(0.172)	0.058	0.006
248	20.67	0.10	0.065	(0.171)	0.058	0.006
249	20.75	0.10	0.065	(0.171)	0.058	0.006
250	20.83	0.07	0.043	(0.170)	0.039	0.004
251	20.92	0.07	0.043	(0.169)	0.039	0.004
252	21.00	0.07	0.043	(0.169)	0.039	0.004
253	21.08	0.10	0.065	(0.168)	0.058	0.006
254	21.17	0.10	0.065	(0.167)	0.058	0.006
255	21.25	0.10	0.065	(0.167)	0.058	0.006
256	21.33	0.07	0.043	(0.166)	0.039	0.004
257	21.42	0.07	0.043	(0.165)	0.039	0.004
258	21.50	0.07	0.043	(0.165)	0.039	0.004
259	21.58	0.10	0.065	(0.164)	0.058	0.006
260	21.67	0.10	0.065	(0.164)	0.058	0.006
261	21.75	0.10	0.065	(0.163)	0.058	0.006
262	21.83	0.07	0.043	(0.163)	0.039	0.004
263	21.92	0.07	0.043	(0.162)	0.039	0.004
264	22.00	0.07	0.043	(0.161)	0.039	0.004
265	22.08	0.10	0.065	(0.161)	0.058	0.006
266	22.17	0.10	0.065	(0.160)	0.058	0.006
267	22.25	0.10	0.065	(0.160)	0.058	0.006
268	22.33	0.07	0.043	(0.159)	0.039	0.004
269	22.42	0.07	0.043	(0.159)	0.039	0.004
270	22.50	0.07	0.043	(0.158)	0.039	0.004
271	22.58	0.07	0.043	(0.158)	0.039	0.004
272	22.67	0.07	0.043	(0.157)	0.039	0.004
273	22.75	0.07	0.043	(0.157)	0.039	0.004
274	22.83	0.07	0.043	(0.157)	0.039	0.004
275	22.92	0.07	0.043	(0.156)	0.039	0.004
276	23.00	0.07	0.043	(0.156)	0.039	0.004
277	23.08	0.07	0.043	(0.155)	0.039	0.004
278	23.17	0.07	0.043	(0.155)	0.039	0.004

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279  23.25     0.07      0.043       (  0.155)       0.039        0.004
280  23.33     0.07      0.043       (  0.155)       0.039        0.004
281  23.42     0.07      0.043       (  0.154)       0.039        0.004
282  23.50     0.07      0.043       (  0.154)       0.039        0.004
283  23.58     0.07      0.043       (  0.154)       0.039        0.004
284  23.67     0.07      0.043       (  0.153)       0.039        0.004
285  23.75     0.07      0.043       (  0.153)       0.039        0.004
286  23.83     0.07      0.043       (  0.153)       0.039        0.004
287  23.92     0.07      0.043       (  0.153)       0.039        0.004
288  24.00     0.07      0.043       (  0.153)       0.039        0.004
            (Loss Rate Not Used)
    Sum =     100.0                                    Sum =    20.2
     Flood volume = Effective rainfall      1.68(In)
      times area       1.6(Ac.)/[(In)/(Ft.)] =       0.2(Ac.Ft)
     Total soil loss =      3.71(In)
     Total soil loss =     0.479(Ac.Ft)
     Total rainfall =      5.39(In)
     Flood volume =        9468.6 Cubic Feet
     Total soil loss =       20858.1 Cubic Feet
     ---------------------------------------------------------------------
      Peak flow rate of this hydrograph =      0.736(CFS)
     ---------------------------------------------------------------------
     +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                         24 - H O U R    S T O R M
                    R u n o f f      H y d r o g r a p h
     ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

     ---------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
 ----------------------------------------------------------------------
   0+ 5       0.0000      0.01  Q         |         |         |         |
   0+10       0.0001      0.01  Q         |         |         |         |
   0+15       0.0001      0.01  Q         |         |         |         |
   0+20       0.0002      0.01  Q         |         |         |         |
   0+25       0.0003      0.01  Q         |         |         |         |
   0+30       0.0003      0.01  Q         |         |         |         |
   0+35       0.0004      0.01  Q         |         |         |         |
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0+40	0.0005	0.01	Q				
0+45	0.0005	0.01	Q				
0+50	0.0006	0.01	Q				
0+55	0.0007	0.01	Q				
1+ 0	0.0008	0.01	Q				
1+ 5	0.0009	0.01	Q				
1+10	0.0010	0.01	Q				
1+15	0.0010	0.01	Q				
1+20	0.0011	0.01	Q				
1+25	0.0012	0.01	Q				
1+30	0.0012	0.01	Q				
1+35	0.0013	0.01	Q				
1+40	0.0014	0.01	Q				
1+45	0.0014	0.01	Q				
1+50	0.0015	0.01	Q				
1+55	0.0016	0.01	Q				
2+ 0	0.0017	0.01	Q				
2+ 5	0.0018	0.01	Q				
2+10	0.0019	0.01	Q				
2+15	0.0020	0.01	Q				
2+20	0.0021	0.01	Q				
2+25	0.0022	0.01	Q				
2+30	0.0023	0.01	Q				
2+35	0.0024	0.02	Q				
2+40	0.0025	0.02	Q				
2+45	0.0026	0.02	Q				
2+50	0.0027	0.02	Q				
2+55	0.0029	0.02	Q				
3+ 0	0.0030	0.02	Q				
3+ 5	0.0031	0.02	Q				
3+10	0.0032	0.02	Q				
3+15	0.0033	0.02	Q				
3+20	0.0034	0.02	Q				
3+25	0.0035	0.02	Q				
3+30	0.0037	0.02	Q				
3+35	0.0038	0.02	Q				
3+40	0.0039	0.02	Q				
3+45	0.0040	0.02	Q				

3+50	0.0041	0.02	Q				
3+55	0.0043	0.02	Q				
4+ 0	0.0044	0.02	Q				
4+ 5	0.0046	0.02	Q				
4+10	0.0047	0.02	Q				
4+15	0.0048	0.02	Q				
4+20	0.0050	0.02	Q				
4+25	0.0052	0.02	Q				
4+30	0.0053	0.02	Q				
4+35	0.0055	0.02	QV				
4+40	0.0057	0.02	QV				
4+45	0.0058	0.02	QV				
4+50	0.0060	0.03	QV				
4+55	0.0062	0.03	QV				
5+ 0	0.0064	0.03	QV				
5+ 5	0.0065	0.02	QV				
5+10	0.0067	0.02	QV				
5+15	0.0068	0.02	QV				
5+20	0.0069	0.02	QV				
5+25	0.0071	0.02	QV				
5+30	0.0073	0.02	QV				
5+35	0.0075	0.03	QV				
5+40	0.0076	0.03	QV				
5+45	0.0078	0.03	QV				
5+50	0.0080	0.03	QV				
5+55	0.0082	0.03	QV				
6+ 0	0.0084	0.03	QV				
6+ 5	0.0086	0.03	QV				
6+10	0.0088	0.03	QV				
6+15	0.0090	0.03	QV				
6+20	0.0092	0.03	QV				
6+25	0.0094	0.03	QV				
6+30	0.0096	0.03	QV				
6+35	0.0099	0.03	QV				
6+40	0.0101	0.03	QV				
6+45	0.0103	0.03	QV				
6+50	0.0106	0.03	QV				
6+55	0.0108	0.03	QV				

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 7+ 0       0.0110      0.03  Q V       |          |          |          |
 7+ 5       0.0113      0.03  Q V       |          |          |          |
 7+10       0.0115      0.03  Q V       |          |          |          |
 7+15       0.0117      0.03  Q V       |          |          |          |
 7+20       0.0120      0.04  Q V       |          |          |          |
 7+25       0.0122      0.04  Q V       |          |          |          |
 7+30       0.0125      0.04  Q V       |          |          |          |
 7+35       0.0127      0.04  Q V       |          |          |          |
 7+40       0.0130      0.04  Q V       |          |          |          |
 7+45       0.0133      0.04  Q V       |          |          |          |
 7+50       0.0136      0.04  Q V       |          |          |          |
 7+55       0.0139      0.04  Q V       |          |          |          |
 8+ 0       0.0142      0.04  Q V       |          |          |          |
 8+ 5       0.0145      0.05  Q V       |          |          |          |
 8+10       0.0149      0.05  Q V       |          |          |          |
 8+15       0.0152      0.05  Q V       |          |          |          |
 8+20       0.0156      0.05  Q V       |          |          |          |
 8+25       0.0159      0.05  Q V       |          |          |          |
 8+30       0.0163      0.05  Q V       |          |          |          |
 8+35       0.0167      0.05  Q  V      |          |          |          |
 8+40       0.0170      0.05  Q  V      |          |          |          |
 8+45       0.0174      0.05  Q  V      |          |          |          |
 8+50       0.0178      0.06  Q  V      |          |          |          |
 8+55       0.0182      0.06  Q  V      |          |          |          |
 9+ 0       0.0186      0.06  Q  V      |          |          |          |
 9+ 5       0.0192      0.10  Q  V      |          |          |          |
 9+10       0.0200      0.11  Q  V      |          |          |          |
 9+15       0.0208      0.11  Q  V      |          |          |          |
 9+20       0.0218      0.14  Q   V     |          |          |          |
 9+25       0.0228      0.15  Q   V     |          |          |          |
 9+30       0.0239      0.15  Q   V     |          |          |          |
 9+35       0.0251      0.18  Q   V     |          |          |          |
 9+40       0.0264      0.19  Q   V     |          |          |          |
 9+45       0.0278      0.20  Q    V    |          |          |          |
 9+50       0.0293      0.22  Q    V    |          |          |          |
 9+55       0.0309      0.23  Q    V    |          |          |          |
10+ 0       0.0326      0.24  Q    V    |          |          |          |
10+ 5       0.0332      0.09  Q     V   |          |          |          |
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10+10       0.0335      0.05  Q     V   |          |          |          |
10+15       0.0339      0.05  Q     V   |          |          |          |
10+20       0.0342      0.05  Q     V   |          |          |          |
10+25       0.0346      0.05  Q     V   |          |          |          |
10+30       0.0349      0.05  Q     V   |          |          |          |
10+35       0.0360      0.16  Q     V   |          |          |          |
10+40       0.0373      0.19  Q     V   |          |          |          |
10+45       0.0386      0.19  Q      V  |          |          |          |
10+50       0.0400      0.19  Q      V  |          |          |          |
10+55       0.0413      0.20  Q      V  |          |          |          |
11+ 0       0.0427      0.20  Q      V  |          |          |          |
11+ 5       0.0439      0.17  Q       V |          |          |          |
11+10       0.0450      0.17  Q       V |          |          |          |
11+15       0.0462      0.17  Q       V |          |          |          |
11+20       0.0474      0.17  Q       V |          |          |          |
11+25       0.0486      0.18  Q       V |          |          |          |
11+30       0.0498      0.18  Q        V|          |          |          |
11+35       0.0507      0.13  Q        V|          |          |          |
11+40       0.0515      0.12  Q        V|          |          |          |
11+45       0.0523      0.12  Q        V|          |          |          |
11+50       0.0533      0.15  Q        V|          |          |          |
11+55       0.0544      0.16  Q         V          |          |          |
12+ 0       0.0555      0.16  Q         V          |          |          |
12+ 5       0.0578      0.34  |Q        V          |          |          |
12+10       0.0606      0.40  |Q        |V         |          |          |
12+15       0.0633      0.40  |Q        |V         |          |          |
12+20       0.0663      0.43  |Q        | V        |          |          |
12+25       0.0693      0.44  |Q        | V        |          |          |
12+30       0.0723      0.44  |Q        |  V       |          |          |
12+35       0.0758      0.50  |Q        |  V       |          |          |
12+40       0.0793      0.51  | Q       |   V      |          |          |
12+45       0.0828      0.51  | Q       |    V     |          |          |
12+50       0.0866      0.54  | Q       |    V     |          |          |
12+55       0.0904      0.55  | Q       |     V    |          |          |
13+ 0       0.0942      0.55  | Q       |      V   |          |          |
13+ 5       0.0989      0.69  | Q       |       V  |          |          |
13+10       0.1039      0.73  | Q       |        V |          |          |
13+15       0.1090      0.73  | Q       |         V|          |          |
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13+20       0.1140      0.73  | Q       |          V          |          |
13+25       0.1191      0.73  | Q       |          |V         |          |
13+30       0.1241      0.74  | Q       |          | V        |          |
13+35       0.1272      0.45  |Q        |          |  V       |          |
13+40       0.1298      0.37  |Q        |          |  V       |          |
13+45       0.1323      0.37  |Q        |          |   V      |          |
13+50       0.1349      0.37  |Q        |          |   V      |          |
13+55       0.1375      0.38  |Q        |          |    V     |          |
14+ 0       0.1401      0.38  |Q        |          |    V     |          |
14+ 5       0.1434      0.48  |Q        |          |     V    |          |
14+10       0.1470      0.52  | Q       |          |      V   |          |
14+15       0.1506      0.52  | Q       |          |      V   |          |
14+20       0.1540      0.49  |Q        |          |       V  |          |
14+25       0.1573      0.49  |Q        |          |       V  |          |
14+30       0.1607      0.49  |Q        |          |        V |          |
14+35       0.1641      0.49  |Q        |          |         V          |
14+40       0.1675      0.49  |Q        |          |         V          |
14+45       0.1709      0.50  |Q        |          |          |V        |
14+50       0.1742      0.47  |Q        |          |          | V       |
14+55       0.1774      0.47  |Q        |          |          | V       |
15+ 0       0.1806      0.47  |Q        |          |          |  V      |
15+ 5       0.1837      0.44  |Q        |          |          |  V      |
15+10       0.1867      0.44  |Q        |          |          |   V     |
15+15       0.1898      0.44  |Q        |          |          |   V     |
15+20       0.1926      0.42  |Q        |          |          |    V    |
15+25       0.1954      0.41  |Q        |          |          |    V    |
15+30       0.1983      0.41  |Q        |          |          |     V   |
15+35       0.2004      0.31  |Q        |          |          |     V   |
15+40       0.2024      0.28  |Q        |          |          |      V  |
15+45       0.2043      0.28  |Q        |          |          |      V  |
15+50       0.2063      0.29  |Q        |          |          |      V  |
15+55       0.2083      0.29  |Q        |          |          |       V |
16+ 0       0.2102      0.29  |Q        |          |          |       V |
16+ 5       0.2108      0.07  Q         |          |          |       V |
16+10       0.2109      0.01  Q         |          |          |       V |
16+15       0.2109      0.01  Q         |          |          |       V |
16+20       0.2110      0.01  Q         |          |          |       V |
16+25       0.2111      0.01  Q         |          |          |       V |
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16+30       0.2112      0.01  Q          |          |          |        V |
16+35       0.2113      0.01  Q          |          |          |        V |
16+40       0.2114      0.01  Q          |          |          |        V |
16+45       0.2114      0.01  Q          |          |          |        V |
16+50       0.2115      0.01  Q          |          |          |        V |
16+55       0.2116      0.01  Q          |          |          |        V |
17+ 0       0.2116      0.01  Q          |          |          |        V |
17+ 5       0.2118      0.02  Q          |          |          |        V |
17+10       0.2119      0.02  Q          |          |          |        V |
17+15       0.2120      0.02  Q          |          |          |         V|
17+20       0.2121      0.02  Q          |          |          |         V|
17+25       0.2122      0.02  Q          |          |          |         V|
17+30       0.2123      0.02  Q          |          |          |         V|
17+35       0.2124      0.02  Q          |          |          |         V|
17+40       0.2126      0.02  Q          |          |          |         V|
17+45       0.2127      0.02  Q          |          |          |         V|
17+50       0.2128      0.01  Q          |          |          |         V|
17+55       0.2129      0.01  Q          |          |          |         V|
18+ 0       0.2130      0.01  Q          |          |          |         V|
18+ 5       0.2131      0.01  Q          |          |          |         V|
18+10       0.2131      0.01  Q          |          |          |         V|
18+15       0.2132      0.01  Q          |          |          |         V|
18+20       0.2133      0.01  Q          |          |          |         V|
18+25       0.2134      0.01  Q          |          |          |         V|
18+30       0.2135      0.01  Q          |          |          |         V|
18+35       0.2136      0.01  Q          |          |          |         V|
18+40       0.2137      0.01  Q          |          |          |         V|
18+45       0.2137      0.01  Q          |          |          |         V|
18+50       0.2138      0.01  Q          |          |          |         V|
18+55       0.2138      0.01  Q          |          |          |         V|
19+ 0       0.2139      0.01  Q          |          |          |         V|
19+ 5       0.2139      0.01  Q          |          |          |         V|
19+10       0.2140      0.01  Q          |          |          |         V|
19+15       0.2141      0.01  Q          |          |          |         V|
19+20       0.2142      0.01  Q          |          |          |         V|
19+25       0.2143      0.01  Q          |          |          |         V|
19+30       0.2144      0.01  Q          |          |          |         V|
19+35       0.2144      0.01  Q          |          |          |         V|
```

19+40	0.2145	0.01	Q	|	|	|	V|
19+45	0.2146	0.01	Q	|	|	|	V|
19+50	0.2146	0.01	Q	|	|	|	V|
19+55	0.2147	0.01	Q	|	|	|	V|
20+ 0	0.2147	0.01	Q	|	|	|	V|
20+ 5	0.2148	0.01	Q	|	|	|	V|
20+10	0.2148	0.01	Q	|	|	|	V|
20+15	0.2149	0.01	Q	|	|	|	V|
20+20	0.2150	0.01	Q	|	|	|	V|
20+25	0.2151	0.01	Q	|	|	|	V|
20+30	0.2151	0.01	Q	|	|	|	V|
20+35	0.2152	0.01	Q	|	|	|	V|
20+40	0.2153	0.01	Q	|	|	|	V|
20+45	0.2153	0.01	Q	|	|	|	V|
20+50	0.2154	0.01	Q	|	|	|	V|
20+55	0.2154	0.01	Q	|	|	|	V|
21+ 0	0.2155	0.01	Q	|	|	|	V|
21+ 5	0.2155	0.01	Q	|	|	|	V|
21+10	0.2156	0.01	Q	|	|	|	V|
21+15	0.2157	0.01	Q	|	|	|	V|
21+20	0.2157	0.01	Q	|	|	|	V|
21+25	0.2158	0.01	Q	|	|	|	V|
21+30	0.2158	0.01	Q	|	|	|	V|
21+35	0.2159	0.01	Q	|	|	|	V|
21+40	0.2160	0.01	Q	|	|	|	V|
21+45	0.2160	0.01	Q	|	|	|	V|
21+50	0.2161	0.01	Q	|	|	|	V|
21+55	0.2161	0.01	Q	|	|	|	V|
22+ 0	0.2162	0.01	Q	|	|	|	V|
22+ 5	0.2162	0.01	Q	|	|	|	V|
22+10	0.2163	0.01	Q	|	|	|	V|
22+15	0.2164	0.01	Q	|	|	|	V|
22+20	0.2164	0.01	Q	|	|	|	V|
22+25	0.2165	0.01	Q	|	|	|	V|
22+30	0.2165	0.01	Q	|	|	|	V|
22+35	0.2166	0.01	Q	|	|	|	V|
22+40	0.2166	0.01	Q	|	|	|	V|
22+45	0.2167	0.01	Q	|	|	|	V|

```
   22+50       0.2167      0.01  Q          |          |          |         V|
   22+55       0.2168      0.01  Q          |          |          |         V|
   23+ 0       0.2168      0.01  Q          |          |          |         V|
   23+ 5       0.2168      0.01  Q          |          |          |         V|
   23+10       0.2169      0.01  Q          |          |          |         V|
   23+15       0.2169      0.01  Q          |          |          |         V|
   23+20       0.2170      0.01  Q          |          |          |         V|
   23+25       0.2170      0.01  Q          |          |          |         V|
   23+30       0.2171      0.01  Q          |          |          |         V|
   23+35       0.2171      0.01  Q          |          |          |         V|
   23+40       0.2172      0.01  Q          |          |          |         V|
   23+45       0.2172      0.01  Q          |          |          |         V|
   23+50       0.2173      0.01  Q          |          |          |         V|
   23+55       0.2173      0.01  Q          |          |          |         V|
   24+ 0       0.2174      0.01  Q          |          |          |         V|
   24+ 5       0.2174      0.00  Q          |          |          |         V|
-------------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 6- 100 YR, 1-hr

Drainage Area = 0.39(Ac.) = 0.001 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 0.39(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 70.00(Ft.)
Length along longest watercourse measured to centroid = 40.00(Ft.)
Length along longest watercourse = 0.013 Mi.
Length along longest watercourse measured to centroid = 0.008 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 75.4286 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.005 Hr.
Lag time =     0.29 Min.
25% of lag time =     0.07 Min.
40% of lag time =     0.11 Min.
Unit time =     5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.39             0.51                 0.20

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.39             1.61                 0.63

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.514(In)
Area Averaged 100-Year Rainfall =    1.610(In)

Point rain (area averaged) =    1.610(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    1.610(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     0.390           69.00          0.200
 Total Area Entered =      0.39(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306       1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

Slope of intensity-duration curve for a 1 hour storm =0.5500

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	100.000	0.393
		Sum = 100.000	Sum= 0.393

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	3.30	0.638	0.306	(0.574)	0.332
2	0.17	4.20	0.811	0.306	(0.730)	0.506
3	0.25	4.40	0.850	0.306	(0.765)	0.544
4	0.33	4.80	0.927	0.306	(0.835)	0.622
5	0.42	5.20	1.005	0.306		

U n i t H y d r o g r a p h A n a l y s i s

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Study date 01/03/23 File: VOLT163100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 16- 100 YR, 3-hr

Drainage Area = 1.63(Ac.) = 0.003 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.63(Ac.) = 0.003 Sq. Mi.
Length along longest watercourse = 180.00(Ft.)
Length along longest watercourse measured to centroid = 90.00(Ft.)
Length along longest watercourse = 0.034 Mi.
Length along longest watercourse measured to centroid = 0.017 Mi.
Difference in elevation = 1.30(Ft.)
Slope along watercourse = 38.1333 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.011 Hr.
Lag time =     0.64 Min.
25% of lag time =     0.16 Min.
40% of lag time =     0.25 Min.
Unit time =     5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.63              0.86                 1.41

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.63              2.25                 3.67

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.864(In)
Area Averaged 100-Year Rainfall =    2.250(In)

Point rain (area averaged) =    2.250(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.250(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     1.630           69.00          0.200
 Total Area Entered =      1.63(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306       1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	784.423	80.805	1.327
2	0.167	1568.846	19.195	0.315
		Sum = 100.000	Sum=	1.643

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.351	0.306	(0.316)	0.045
2	0.17	1.30	0.351	0.306	(0.316)	0.045
3	0.25	1.10	0.297	(0.306)	0.267	0.030
4	0.33	1.50	0.405	0.306	(0.364)	0.099
5	0.42	1.50	0.405	0.306	(0.364)	0.099
6	0.50	1.80	0.486	0.306	(0.437)	0.180
7	0.58	1.50	0.405	0.306	(0.364)	0.099
8	0.67	1.80	0.486	0.306	(0.437)	0.180
9	0.75	1.80	0.486	0.306	(0.437)	0.180
10	0.83	1.50	0.405	0.306	(0.364)	0.099
11	0.92	1.60	0.432	0.306	(0.389)	0.126
12	1.00	1.80	0.486	0.306	(0.437)	0.180

```
13   1.08     2.20      0.594          0.306    (  0.535)         0.288
14   1.17     2.20      0.594          0.306    (  0.535)         0.288
15   1.25     2.20      0.594          0.306    (  0.535)         0.288
16   1.33     2.00      0.540          0.306    (  0.486)         0.234
17   1.42     2.60      0.702          0.306    (  0.632)         0.396
18   1.50     2.70      0.729          0.306    (  0.656)         0.423
19   1.58     2.40      0.648          0.306    (  0.583)         0.342
20   1.67     2.70      0.729          0.306    (  0.656)         0.423
21   1.75     3.30      0.891          0.306    (  0.802)         0.585
22   1.83     3.10      0.837          0.306    (  0.753)         0.531
23   1.92     2.90      0.783          0.306    (  0.705)         0.477
24   2.00     3.00      0.810          0.306    (  0.729)         0.504
25   2.08     3.10      0.837          0.306    (  0.753)         0.531
26   2.17     4.20      1.134          0.306    (  1.021)         0.828
27   2.25     5.00      1.350          0.306    (  1.215)         1.044
28   2.33     3.50      0.945          0.306    (  0.850)         0.639
29   2.42     6.80      1.836          0.306    (  1.652)         1.530
30   2.50     7.30      1.971          0.306    (  1.774)         1.665
31   2.58     8.20      2.214          0.306    (  1.993)         1.908
32   2.67     5.90      1.593          0.306    (  1.434)         1.287
33   2.75     2.00      0.540          0.306    (  0.486)         0.234
34   2.83     1.80      0.486          0.306    (  0.437)         0.180
35   2.92     1.80      0.486          0.306    (  0.437)         0.180
36   3.00     0.60      0.162       (  0.306)       0.146         0.016
          (Loss Rate Not Used)
   Sum =     100.0                                    Sum =    16.2
    Flood volume = Effective rainfall      1.35(In)
     times area       1.6(Ac.)/[(In)/(Ft.)] =       0.2(Ac.Ft)
    Total soil loss =      0.90(In)
    Total soil loss =     0.122(Ac.Ft)
    Total rainfall =      2.25(In)
    Flood volume =        7984.4 Cubic Feet
    Total soil loss =        5328.5 Cubic Feet
    ---------------------------------------------------------------------
     Peak flow rate of this hydrograph =      3.060(CFS)
    ---------------------------------------------------------------------
    +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        3 - H O U R    S T O R M
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R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0004	0.06	Q				
0+10	0.0009	0.07	Q				
0+15	0.0013	0.05	Q				
0+20	0.0023	0.14	Q				
0+25	0.0034	0.16	Q				
0+30	0.0053	0.27	|Q				
0+35	0.0066	0.19	QV				
0+40	0.0084	0.27	|Q				
0+45	0.0105	0.30	|QV				
0+50	0.0118	0.19	Q V				
0+55							

U n i t H y d r o g r a p h A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 6- 100 YR, 6-hr

Drainage Area = 0.39(Ac.) = 0.001 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 0.39(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 70.00(Ft.)
Length along longest watercourse measured to centroid = 40.00(Ft.)
Length along longest watercourse = 0.013 Mi.
Length along longest watercourse measured to centroid = 0.008 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 75.4286 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.005 Hr.
Lag time =     0.29 Min.
25% of lag time =     0.07 Min.
40% of lag time =     0.11 Min.
Unit time =     5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.39             1.20                 0.47

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.39             2.99                 1.17

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.200(In)
Area Averaged 100-Year Rainfall =    2.990(In)

Point rain (area averaged) =    2.990(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.990(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     0.390           69.00          0.200
 Total Area Entered =      0.39(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306       1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	1739.922	100.000	0.393
		Sum = 100.000	Sum= 0.393

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max		Low	Effective (In/Hr)
1	0.08	0.50	0.179	(0.306)		0.161	0.018
2	0.17	0.60	0.215	(0.306)		0.194	0.022
3	0.25	0.60	0.215	(0.306)		0.194	0.022
4	0.33	0.60	0.215	(0.306)		0.194	0.022
5	0.42	0.60	0.215	(0.306)		0.194	0.022
6	0.50	0.70	0.251	(0.306)		0.226	0.025
7	0.58	0.70	0.251	(0.306)		0.226	0.025
8	0.67	0.70	0.251	(0.306)		0.226	0.025
9	0.75	0.70	0.251	(0.306)		0.226	0.025
10	0.83	0.70	0.251	(0.306)		0.226	0.025
11	0.92	0.70	0.251	(0.306)		0.226	0.025
12	1.00	0.80	0.287	(0.306)		0.258	0.029
13	1.08	0.80	0.287	(0.306)		0.258	0.029

14	1.17	0.80	0.287	(0.306)	0.258	0.029
15	1.25	0.80	0.287	(0.306)	0.258	0.029
16	1.33	0.80	0.287	(0.306)	0.258	0.029
17	1.42	0.80	0.287	(0.306)	0.258	0.029
18	1.50	0.80	0.287	(0.306)	0.258	0.029
19	1.58	0.80	0.287	(0.306)	0.258	0.029
20	1.67	0.80	0.287	(0.306)	0.258	0.029
21	1.75	0.80	0.287	(0.306)	0.258	0.029
22	1.83	0.80	0.287	(0.306)	0.258	0.029
23	1.92	0.80	0.287	(0.306)	0.258	0.029
24	2.00	0.90	0.323	(0.306)	0.291	0.032
25	2.08	0.80	0.287	(0.306)	0.258	0.029
26	2.17	0.90	0.323	(0.306)	0.291	0.032
27	2.25	0.90	0.323	(0.306)	0.291	0.032
28	2.33	0.90	0.323	(0.306)	0.291	0.032
29	2.42	0.90	0.323	(0.306)	0.291	0.032
30	2.50	0.90	0.323	(0.306)	0.291	0.032
31	2.58	0.90	0.323	(0.306)	0.291	0.032
32	2.67	0.90	0.323	(0.306)	0.291	0.032
33	2.75	1.00	0.359	0.306	(0.323)	0.053
34	2.83	1.00	0.359	0.306	(0.323)	0.053
35	2.92	1.00	0.359	0.306	(0.323)	0.053
36	3.00	1.00	0.359	0.306	(0.323)	0.053
37	3.08	1.00	0.359	0.306	(0.323)	0.053
38	3.17	1.10	0.395	0.306	(0.355)	0.089
39	3.25	1.10	0.395	0.306	(0.355)	0.089
40	3.33	1.10	0.395	0.306	(0.355)	0.089
41	3.42	1.20	0.431	0.306	(0.388)	0.125
42	3.50	1.30	0.466	0.306	(0.420)	0.161
43	3.58	1.40	0.502	0.306	(0.452)	0.197
44	3.67	1.40	0.502	0.306	(0.452)	0.197
45	3.75	1.50	0.538	0.306	(0.484)	0.233
46	3.83	1.50	0.538	0.306	(0.484)	0.233
47	3.92	1.60	0.574	0.306	(0.517)	0.268
48	4.00	1.60	0.574	0.306	(0.517)	0.268
49	4.08	1.70	0.610	0.306	(0.549)	0.304
50	4.17	1.80	0.646	0.306	(0.581)	0.340
51	4.25	1.90	0.682	0.306	(0.614)	0.376

```
52   4.33     2.00      0.718          0.306    (  0.646)        0.412
53   4.42     2.10      0.753          0.306    (  0.678)        0.448
54   4.50     2.10      0.753          0.306    (  0.678)        0.448
55   4.58     2.20      0.789          0.306    (  0.710)        0.484
56   4.67     2.30      0.825          0.306    (  0.743)        0.520
57   4.75     2.40      0.861          0.306    (  0.775)        0.555
58   4.83     2.40      0.861          0.306    (  0.775)        0.555
59   4.92     2.50      0.897          0.306    (  0.807)        0.591
60   5.00     2.60      0.933          0.306    (  0.840)        0.627
61   5.08     3.10      1.112          0.306    (  1.001)        0.807
62   5.17     3.60      1.292          0.306    (  1.163)        0.986
63   5.25     3.90      1.399          0.306    (  1.259)        1.094
64   5.33     4.20      1.507          0.306    (  1.356)        1.201
65   5.42     4.70      1.686          0.306    (  1.518)        1.381
66   5.50     5.60      2.009          0.306    (  1.808)        1.704
67   5.58     1.90      0.682          0.306    (  0.614)        0.376
68   5.67     0.90      0.323       (  0.306)       0.291        0.032
69   5.75     0.60      0.215       (  0.306)       0.194        0.022
70   5.83     0.50      0.179       (  0.306)       0.161        0.018
71   5.92     0.30      0.108       (  0.306)       0.097        0.011
72   6.00     0.20      0.072       (  0.306)       0.065        0.007
          (Loss Rate Not Used)
   Sum =     100.0                                   Sum =    16.4
    Flood volume = Effective rainfall      1.37(In)
     times area       0.4(Ac.)/[(In)/(Ft.)] =       0.0(Ac.Ft)
    Total soil loss =      1.62(In)
    Total soil loss =     0.053(Ac.Ft)
    Total rainfall =      2.99(In)
    Flood volume =        1934.5 Cubic Feet
    Total soil loss =        2298.5 Cubic Feet
    ---------------------------------------------------------------------
     Peak flow rate of this hydrograph =      0.670(CFS)
    ---------------------------------------------------------------------
    +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        6 - H O U R    S T O R M
                    R u n o f f      H y d r o g r a p h
    ---------------------------------------------------------------------
                Hydrograph in   5   Minute intervals ((CFS))
```

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0000	0.01	Q				
0+10	0.0001	0.01	Q				
0+15	0.0002	0.01	Q				
0+20	0.0002	0.01	Q				
0+25	0.0003	0.01	Q				
0+30	0.0003	0.01	Q				
0+35	0.0004	0.01	Q				
0+40	0.0005	0.01	Q				
0+45	0.0006	0.01	Q				
0+50	0.0006	0.01	Q				
0+55	0.0007	0.01	Q				
1+ 0	0.0008	0.01	Q				
1+ 5	0.0008	0.01	Q				
1+10	0.0009	0.01	Q				
1+15	0.0010	0.01	Q				
1+20	0.0011	0.01	Q				
1+25	0.0012	0.01	QV				
1+30	0.0012	0.01	QV				
1+35	0.0013	0.01	QV				
1+40	0.0014	0.01	QV				
1+45	0.0015	0.01	QV				
1+50	0.0015	0.01	QV				
1+55	0.0016	0.01	QV				
2+ 0	0.0017	0.01	QV				
2+ 5	0.0018	0.01	QV				
2+10	0.0019	0.01	QV				
2+15	0.0020	0.01	QV				
2+20	0.0021	0.01	QV				
2+25	0.0021	0.01	QV				
2+30	0.0022	0.01	Q V				
2+35	0.0023						

U n i t H y d r o g r a p h A n a l y s i s

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Study date 01/03/23 File: VOLT1624100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 16- 100 YR, 24-hr

Drainage Area = 1.63(Ac.) = 0.003 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.63(Ac.) = 0.003 Sq. Mi.
Length along longest watercourse = 180.00(Ft.)
Length along longest watercourse measured to centroid = 90.00(Ft.)
Length along longest watercourse = 0.034 Mi.
Length along longest watercourse measured to centroid = 0.017 Mi.
Difference in elevation = 1.30(Ft.)
Slope along watercourse = 38.1333 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.011 Hr.
Lag time =     0.64 Min.
25% of lag time =     0.16 Min.
40% of lag time =     0.25 Min.
Unit time =     5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.63             2.06                 3.36

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.63             5.39                 8.79

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    2.060(In)
Area Averaged 100-Year Rainfall =    5.390(In)

Point rain (area averaged) =    5.390(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    5.390(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     1.630           69.00          0.200
 Total Area Entered =      1.63(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306        1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	784.423	80.805	1.327
2	0.167	1568.846	19.195	0.315
		Sum = 100.000	Sum=	1.643

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.043	(0.542)	0.039	0.004
2	0.17	0.07	0.043	(0.540)	0.039	0.004
3	0.25	0.07	0.043	(0.538)	0.039	0.004
4	0.33	0.10	0.065	(0.536)	0.058	0.006
5	0.42	0.10	0.065	(0.534)	0.058	0.006
6	0.50	0.10	0.065	(0.531)	0.058	0.006
7	0.58	0.10	0.065	(0.529)	0.058	0.006
8	0.67	0.10	0.065	(0.527)	0.058	0.006
9	0.75	0.10	0.065	(0.525)	0.058	0.006
10	0.83	0.13	0.086	(0.523)	0.078	0.009
11	0.92	0.13	0.086	(0.521)	0.078	0.009
12	1.00	0.13	0.086	(0.519)	0.078	0.009

13	1.08	0.10	0.065	(0.517)	0.058	0.006
14	1.17	0.10	0.065	(0.515)	0.058	0.006
15	1.25	0.10	0.065	(0.513)	0.058	0.006
16	1.33	0.10	0.065	(0.511)	0.058	0.006
17	1.42	0.10	0.065	(0.509)	0.058	0.006
18	1.50	0.10	0.065	(0.507)	0.058	0.006
19	1.58	0.10	0.065	(0.505)	0.058	0.006
20	1.67	0.10	0.065	(0.503)	0.058	0.006
21	1.75	0.10	0.065	(0.501)	0.058	0.006
22	1.83	0.13	0.086	(0.499)	0.078	0.009
23	1.92	0.13	0.086	(0.497)	0.078	0.009
24	2.00	0.13	0.086	(0.495)	0.078	0.009
25	2.08	0.13	0.086	(0.493)	0.078	0.009
26	2.17	0.13	0.086	(0.491)	0.078	0.009
27	2.25	0.13	0.086	(0.489)	0.078	0.009
28	2.33	0.13	0.086	(0.487)	0.078	0.009
29	2.42	0.13	0.086	(0.485)	0.078	0.009
30	2.50	0.13	0.086	(0.483)	0.078	0.009
31	2.58	0.17	0.108	(0.481)	0.097	0.011
32	2.67	0.17	0.108	(0.479)	0.097	0.011
33	2.75	0.17	0.108	(0.477)	0.097	0.011
34	2.83	0.17	0.108	(0.475)	0.097	0.011
35	2.92	0.17	0.108	(0.473)	0.097	0.011
36	3.00	0.17	0.108	(0.471)	0.097	0.011
37	3.08	0.17	0.108	(0.469)	0.097	0.011
38	3.17	0.17	0.108	(0.467)	0.097	0.011
39	3.25	0.17	0.108	(0.465)	0.097	0.011
40	3.33	0.17	0.108	(0.463)	0.097	0.011
41	3.42	0.17	0.108	(0.461)	0.097	0.011
42	3.50	0.17	0.108	(0.459)	0.097	0.011
43	3.58	0.17	0.108	(0.457)	0.097	0.011
44	3.67	0.17	0.108	(0.456)	0.097	0.011
45	3.75	0.17	0.108	(0.454)	0.097	0.011
46	3.83	0.20	0.129	(0.452)	0.116	0.013
47	3.92	0.20	0.129	(0.450)	0.116	0.013
48	4.00	0.20	0.129	(0.448)	0.116	0.013
49	4.08	0.20	0.129	(0.446)	0.116	0.013
50	4.17	0.20	0.129	(0.444)	0.116	0.013

51	4.25	0.20	0.129	(0.442)	0.116	0.013
52	4.33	0.23	0.151	(0.440)	0.136	0.015
53	4.42	0.23	0.151	(0.438)	0.136	0.015
54	4.50	0.23	0.151	(0.437)	0.136	0.015
55	4.58	0.23	0.151	(0.435)	0.136	0.015
56	4.67	0.23	0.151	(0.433)	0.136	0.015
57	4.75	0.23	0.151	(0.431)	0.136	0.015
58	4.83	0.27	0.172	(0.429)	0.155	0.017
59	4.92	0.27	0.172	(0.427)	0.155	0.017
60	5.00	0.27	0.172	(0.425)	0.155	0.017
61	5.08	0.20	0.129	(0.424)	0.116	0.013
62	5.17	0.20	0.129	(0.422)	0.116	0.013
63	5.25	0.20	0.129	(0.420)	0.116	0.013
64	5.33	0.23	0.151	(0.418)	0.136	0.015
65	5.42	0.23	0.151	(0.416)	0.136	0.015
66	5.50	0.23	0.151	(0.414)	0.136	0.015
67	5.58	0.27	0.172	(0.413)	0.155	0.017
68	5.67	0.27	0.172	(0.411)	0.155	0.017
69	5.75	0.27	0.172	(0.409)	0.155	0.017
70	5.83	0.27	0.172	(0.407)	0.155	0.017
71	5.92	0.27	0.172	(0.405)	0.155	0.017
72	6.00	0.27	0.172	(0.404)	0.155	0.017
73	6.08	0.30	0.194	(0.402)	0.175	0.019
74	6.17	0.30	0.194	(0.400)	0.175	0.019
75	6.25	0.30	0.194	(0.398)	0.175	0.019
76	6.33	0.30	0.194	(0.396)	0.175	0.019
77	6.42	0.30	0.194	(0.395)	0.175	0.019
78	6.50	0.30	0.194	(0.393)	0.175	0.019
79	6.58	0.33	0.216	(0.391)	0.194	0.022
80	6.67	0.33	0.216	(0.389)	0.194	0.022
81	6.75	0.33	0.216	(0.388)	0.194	0.022
82	6.83	0.33	0.216	(0.386)	0.194	0.022
83	6.92	0.33	0.216	(0.384)	0.194	0.022
84	7.00	0.33	0.216	(0.382)	0.194	0.022
85	7.08	0.33	0.216	(0.381)	0.194	0.022
86	7.17	0.33	0.216	(0.379)	0.194	0.022
87	7.25	0.33	0.216	(0.377)	0.194	0.022
88	7.33	0.37	0.237	(0.375)	0.213	0.024

89	7.42	0.37	0.237	(0.374)	0.213	0.024
90	7.50	0.37	0.237	(0.372)	0.213	0.024
91	7.58	0.40	0.259	(0.370)	0.233	0.026
92	7.67	0.40	0.259	(0.369)	0.233	0.026
93	7.75	0.40	0.259	(0.367)	0.233	0.026
94	7.83	0.43	0.280	(0.365)	0.252	0.028
95	7.92	0.43	0.280	(0.363)	0.252	0.028
96	8.00	0.43	0.280	(0.362)	0.252	0.028
97	8.08	0.50	0.323	(0.360)	0.291	0.032
98	8.17	0.50	0.323	(0.358)	0.291	0.032
99	8.25	0.50	0.323	(0.357)	0.291	0.032
100	8.33	0.50	0.323	(0.355)	0.291	0.032
101	8.42	0.50	0.323	(0.353)	0.291	0.032
102	8.50	0.50	0.323	(0.352)	0.291	0.032
103	8.58	0.53	0.345	(0.350)	0.310	0.034
104	8.67	0.53	0.345	(0.348)	0.310	0.034
105	8.75	0.53	0.345	(0.347)	0.310	0.034
106	8.83	0.57	0.367	(0.345)	0.330	0.037
107	8.92	0.57	0.367	(0.344)	0.330	0.037
108	9.00	0.57	0.367	(0.342)	0.330	0.037
109	9.08	0.63	0.410	0.340	(0.369)	0.069
110	9.17	0.63	0.410	0.339	(0.369)	0.071
111	9.25	0.63	0.410	0.337	(0.369)	0.073
112	9.33	0.67	0.431	0.335	(0.388)	0.096
113	9.42	0.67	0.431	0.334	(0.388)	0.097
114	9.50	0.67	0.431	0.332	(0.388)	0.099
115	9.58	0.70	0.453	0.331	(0.407)	0.122
116	9.67	0.70	0.453	0.329	(0.407)	0.124
117	9.75	0.70	0.453	0.328	(0.407)	0.125
118	9.83	0.73	0.474	0.326	(0.427)	0.148
119	9.92	0.73	0.474	0.324	(0.427)	0.150
120	10.00	0.73	0.474	0.323	(0.427)	0.152
121	10.08	0.50	0.323	(0.321)	0.291	0.032
122	10.17	0.50	0.323	(0.320)	0.291	0.032
123	10.25	0.50	0.323	(0.318)	0.291	0.032
124	10.33	0.50	0.323	(0.317)	0.291	0.032
125	10.42	0.50	0.323	(0.315)	0.291	0.032
126	10.50	0.50	0.323	(0.314)	0.291	0.032

127	10.58	0.67	0.431	0.312	(	0.388)	0.119
128	10.67	0.67	0.431	0.310	(	0.388)	0.121
129	10.75	0.67	0.431	0.309	(	0.388)	0.122
130	10.83	0.67	0.431	0.307	(	0.388)	0.124
131	10.92	0.67	0.431	0.306	(	0.388)	0.125
132	11.00	0.67	0.431	0.304	(	0.388)	0.127
133	11.08	0.63	0.410	0.303	(	0.369)	0.107
134	11.17	0.63	0.410	0.301	(	0.369)	0.108
135	11.25	0.63	0.410	0.300	(	0.369)	0.110
136	11.33	0.63	0.410	0.298	(	0.369)	0.111
137	11.42	0.63	0.410	0.297	(	0.369)	0.113
138	11.50	0.63	0.410	0.296	(	0.369)	0.114
139	11.58	0.57	0.367	0.294	(	0.330)	0.072
140	11.67	0.57	0.367	0.293	(	0.330)	0.074
141	11.75	0.57	0.367	0.291	(	0.330)	0.075
142	11.83	0.60	0.388	0.290	(	0.349)	0.098
143	11.92	0.60	0.388	0.288	(	0.349)	0.100
144	12.00	0.60	0.388	0.287	(	0.349)	0.101
145	12.08	0.83	0.539	0.285	(	0.485)	0.254
146	12.17	0.83	0.539	0.284	(	0.485)	0.255
147	12.25	0.83	0.539	0.283	(	0.485)	0.256
148	12.33	0.87	0.561	0.281	(	0.505)	0.279
149	12.42	0.87	0.561	0.280	(	0.505)	0.281
150	12.50	0.87	0.561	0.278	(	0.505)	0.282
151	12.58	0.93	0.604	0.277	(	0.543)	0.327
152	12.67	0.93	0.604	0.275	(	0.543)	0.328
153	12.75	0.93	0.604	0.274	(	0.543)	0.330
154	12.83	0.97	0.625	0.273	(	0.563)	0.353
155	12.92	0.97	0.625	0.271	(	0.563)	0.354
156	13.00	0.97	0.625	0.270	(	0.563)	0.355
157	13.08	1.13	0.733	0.269	(	0.660)	0.464
158	13.17	1.13	0.733	0.267	(	0.660)	0.466
159	13.25	1.13	0.733	0.266	(	0.660)	0.467
160	13.33	1.13	0.733	0.265	(	0.660)	0.469
161	13.42	1.13	0.733	0.263	(	0.660)	0.470
162	13.50	1.13	0.733	0.262	(	0.660)	0.471
163	13.58	0.77	0.496	0.261	(	0.446)	0.235
164	13.67	0.77	0.496	0.259	(	0.446)	0.237

165	13.75	0.77	0.496	0.258	(0.446)	0.238
166	13.83	0.77	0.496	0.257	(0.446)	0.239
167	13.92	0.77	0.496	0.255	(0.446)	0.241
168	14.00	0.77	0.496	0.254	(0.446)	0.242
169	14.08	0.90	0.582	0.253	(0.524)	0.329
170	14.17	0.90	0.582	0.251	(0.524)	0.331
171	14.25	0.90	0.582	0.250	(0.524)	0.332
172	14.33	0.87	0.561	0.249	(0.505)	0.312
173	14.42	0.87	0.561	0.248	(0.505)	0.313
174	14.50	0.87	0.561	0.246	(0.505)	0.314
175	14.58	0.87	0.561	0.245	(0.505)	0.316
176	14.67	0.87	0.561	0.244	(0.505)	0.317
177	14.75	0.87	0.561	0.242	(0.505)	0.318
178	14.83	0.83	0.539	0.241	(0.485)	0.298
179	14.92	0.83	0.539	0.240	(0.485)	0.299
180	15.00	0.83	0.539	0.239	(0.485)	0.300
181	15.08	0.80	0.517	0.238	(0.466)	0.280
182	15.17	0.80	0.517	0.236	(0.466)	0.281
183	15.25	0.80	0.517	0.235	(0.466)	0.282
184	15.33	0.77	0.496	0.234	(0.446)	0.262
185	15.42	0.77	0.496	0.233	(0.446)	0.263
186	15.50	0.77	0.496	0.232	(0.446)	0.264
187	15.58	0.63	0.410	0.230	(0.369)	0.179
188	15.67	0.63	0.410	0.229	(0.369)	0.180
189	15.75	0.63	0.410	0.228	(0.369)	0.182
190	15.83	0.63	0.410	0.227	(0.369)	0.183
191	15.92	0.63	0.410	0.226	(0.369)	0.184
192	16.00	0.63	0.410	0.224	(0.369)	0.185
193	16.08	0.13	0.086	(0.223)	0.078	0.009
194	16.17	0.13	0.086	(0.222)	0.078	0.009
195	16.25	0.13	0.086	(0.221)	0.078	0.009
196	16.33	0.13	0.086	(0.220)	0.078	0.009
197	16.42	0.13	0.086	(0.219)	0.078	0.009
198	16.50	0.13	0.086	(0.218)	0.078	0.009
199	16.58	0.10	0.065	(0.217)	0.058	0.006
200	16.67	0.10	0.065	(0.215)	0.058	0.006
201	16.75	0.10	0.065	(0.214)	0.058	0.006
202	16.83	0.10	0.065	(0.213)	0.058	0.006

203	16.92	0.10	0.065	(0.212)	0.058	0.006
204	17.00	0.10	0.065	(0.211)	0.058	0.006
205	17.08	0.17	0.108	(0.210)	0.097	0.011
206	17.17	0.17	0.108	(0.209)	0.097	0.011
207	17.25	0.17	0.108	(0.208)	0.097	0.011
208	17.33	0.17	0.108	(0.207)	0.097	0.011
209	17.42	0.17	0.108	(0.206)	0.097	0.011
210	17.50	0.17	0.108	(0.205)	0.097	0.011
211	17.58	0.17	0.108	(0.204)	0.097	0.011
212	17.67	0.17	0.108	(0.203)	0.097	0.011
213	17.75	0.17	0.108	(0.202)	0.097	0.011
214	17.83	0.13	0.086	(0.201)	0.078	0.009
215	17.92	0.13	0.086	(0.200)	0.078	0.009
216	18.00	0.13	0.086	(0.199)	0.078	0.009
217	18.08	0.13	0.086	(0.198)	0.078	0.009
218	18.17	0.13	0.086	(0.197)	0.078	0.009
219	18.25	0.13	0.086	(0.196)	0.078	0.009
220	18.33	0.13	0.086	(0.195)	0.078	0.009
221	18.42	0.13	0.086	(0.194)	0.078	0.009
222	18.50	0.13	0.086	(0.193)	0.078	0.009
223	18.58	0.10	0.065	(0.192)	0.058	0.006
224	18.67	0.10	0.065	(0.191)	0.058	0.006
225	18.75	0.10	0.065	(0.190)	0.058	0.006
226	18.83	0.07	0.043	(0.189)	0.039	0.004
227	18.92	0.07	0.043	(0.188)	0.039	0.004
228	19.00	0.07	0.043	(0.188)	0.039	0.004
229	19.08	0.10	0.065	(0.187)	0.058	0.006
230	19.17	0.10	0.065	(0.186)	0.058	0.006
231	19.25	0.10	0.065	(0.185)	0.058	0.006
232	19.33	0.13	0.086	(0.184)	0.078	0.009
233	19.42	0.13	0.086	(0.183)	0.078	0.009
234	19.50	0.13	0.086	(0.182)	0.078	0.009
235	19.58	0.10	0.065	(0.182)	0.058	0.006
236	19.67	0.10	0.065	(0.181)	0.058	0.006
237	19.75	0.10	0.065	(0.180)	0.058	0.006
238	19.83	0.07	0.043	(0.179)	0.039	0.004
239	19.92	0.07	0.043	(0.178)	0.039	0.004
240	20.00	0.07	0.043	(0.178)	0.039	0.004

241	20.08	0.10	0.065	(0.177)	0.058	0.006
242	20.17	0.10	0.065	(0.176)	0.058	0.006
243	20.25	0.10	0.065	(0.175)	0.058	0.006
244	20.33	0.10	0.065	(0.174)	0.058	0.006
245	20.42	0.10	0.065	(0.174)	0.058	0.006
246	20.50	0.10	0.065	(0.173)	0.058	0.006
247	20.58	0.10	0.065	(0.172)	0.058	0.006
248	20.67	0.10	0.065	(0.171)	0.058	0.006
249	20.75	0.10	0.065	(0.171)	0.058	0.006
250	20.83	0.07	0.043	(0.170)	0.039	0.004
251	20.92	0.07	0.043	(0.169)	0.039	0.004
252	21.00	0.07	0.043	(0.169)	0.039	0.004
253	21.08	0.10	0.065	(0.168)	0.058	0.006
254	21.17	0.10	0.065	(0.167)	0.058	0.006
255	21.25	0.10	0.065	(0.167)	0.058	0.006
256	21.33	0.07	0.043	(0.166)	0.039	0.004
257	21.42	0.07	0.043	(0.165)	0.039	0.004
258	21.50	0.07	0.043	(0.165)	0.039	0.004
259	21.58	0.10	0.065	(0.164)	0.058	0.006
260	21.67	0.10	0.065	(0.164)	0.058	0.006
261	21.75	0.10	0.065	(0.163)	0.058	0.006
262	21.83	0.07	0.043	(0.163)	0.039	0.004
263	21.92	0.07	0.043	(0.162)	0.039	0.004
264	22.00	0.07	0.043	(0.161)	0.039	0.004
265	22.08	0.10	0.065	(0.161)	0.058	0.006
266	22.17	0.10	0.065	(0.160)	0.058	0.006
267	22.25	0.10	0.065	(0.160)	0.058	0.006
268	22.33	0.07	0.043	(0.159)	0.039	0.004
269	22.42	0.07	0.043	(0.159)	0.039	0.004
270	22.50	0.07	0.043	(0.158)	0.039	0.004
271	22.58	0.07	0.043	(0.158)	0.039	0.004
272	22.67	0.07	0.043	(0.157)	0.039	0.004
273	22.75	0.07	0.043	(0.157)	0.039	0.004
274	22.83	0.07	0.043	(0.157)	0.039	0.004
275	22.92	0.07	0.043	(0.156)	0.039	0.004
276	23.00	0.07	0.043	(0.156)	0.039	0.004
277	23.08	0.07	0.043	(0.155)	0.039	0.004
278	23.17	0.07	0.043	(0.155)	0.039	0.004

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279  23.25     0.07      0.043       (  0.155)       0.039        0.004
280  23.33     0.07      0.043       (  0.155)       0.039        0.004
281  23.42     0.07      0.043       (  0.154)       0.039        0.004
282  23.50     0.07      0.043       (  0.154)       0.039        0.004
283  23.58     0.07      0.043       (  0.154)       0.039        0.004
284  23.67     0.07      0.043       (  0.153)       0.039        0.004
285  23.75     0.07      0.043       (  0.153)       0.039        0.004
286  23.83     0.07      0.043       (  0.153)       0.039        0.004
287  23.92     0.07      0.043       (  0.153)       0.039        0.004
288  24.00     0.07      0.043       (  0.153)       0.039        0.004
            (Loss Rate Not Used)
    Sum =     100.0                                    Sum =    20.2
     Flood volume = Effective rainfall      1.68(In)
      times area       1.6(Ac.)/[(In)/(Ft.)] =       0.2(Ac.Ft)
     Total soil loss =      3.71(In)
     Total soil loss =     0.504(Ac.Ft)
     Total rainfall =      5.39(In)
     Flood volume =         9957.3 Cubic Feet
     Total soil loss =       21934.7 Cubic Feet
     ---------------------------------------------------------------------
      Peak flow rate of this hydrograph =      0.774(CFS)
     ---------------------------------------------------------------------
     +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                         24 - H O U R    S T O R M
                    R u n o f f      H y d r o g r a p h
     ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

     ---------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
 ------------------------------------------------------------------------
   0+ 5       0.0000      0.01  Q          |         |         |         |
   0+10       0.0001      0.01  Q          |         |         |         |
   0+15       0.0001      0.01  Q          |         |         |         |
   0+20       0.0002      0.01  Q          |         |         |         |
   0+25       0.0003      0.01  Q          |         |         |         |
   0+30       0.0004      0.01  Q          |         |         |         |
   0+35       0.0004      0.01  Q          |         |         |         |
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0+40	0.0005	0.01	Q				
0+45	0.0006	0.01	Q				
0+50	0.0007	0.01	Q				
0+55	0.0008	0.01	Q				
1+ 0	0.0009	0.01	Q				
1+ 5	0.0009	0.01	Q				
1+10	0.0010	0.01	Q				
1+15	0.0011	0.01	Q				
1+20	0.0012	0.01	Q				
1+25	0.0012	0.01	Q				
1+30	0.0013	0.01	Q				
1+35	0.0014	0.01	Q				
1+40	0.0015	0.01	Q				
1+45	0.0015	0.01	Q				
1+50	0.0016	0.01	Q				
1+55	0.0017	0.01	Q				
2+ 0	0.0018	0.01	Q				
2+ 5	0.0019	0.01	Q				
2+10	0.0020	0.01	Q				
2+15	0.0021	0.01	Q				
2+20	0.0022	0.01	Q				
2+25	0.0023	0.01	Q				
2+30	0.0024	0.01	Q				
2+35	0.0025	0.02	Q				
2+40	0.0026	0.02	Q				
2+45	0.0028	0.02	Q				
2+50	0.0029	0.02	Q				
2+55	0.0030	0.02	Q				
3+ 0	0.0031	0.02	Q				
3+ 5	0.0032	0.02	Q				
3+10	0.0034	0.02	Q				
3+15	0.0035	0.02	Q				
3+20	0.0036	0.02	Q				
3+25	0.0037	0.02	Q				
3+30	0.0039	0.02	Q				
3+35	0.0040	0.02	Q				
3+40	0.0041	0.02	Q				
3+45	0.0042	0.02	Q				

3+50	0.0044	0.02	Q				
3+55	0.0045	0.02	Q				
4+ 0	0.0047	0.02	Q				
4+ 5	0.0048	0.02	Q				
4+10	0.0050	0.02	Q				
4+15	0.0051	0.02	Q				
4+20	0.0053	0.02	Q				
4+25	0.0054	0.02	Q				
4+30	0.0056	0.02	Q				
4+35	0.0058	0.02	QV				
4+40	0.0059	0.02	QV				
4+45	0.0061	0.02	QV				
4+50	0.0063	0.03	QV				
4+55	0.0065	0.03	QV				
5+ 0	0.0067	0.03	QV				
5+ 5	0.0069	0.02	QV				
5+10	0.0070	0.02	QV				
5+15	0.0071	0.02	QV				
5+20	0.0073	0.02	QV				
5+25	0.0075	0.02	QV				
5+30	0.0077	0.02	QV				
5+35	0.0078	0.03	QV				
5+40	0.0080	0.03	QV				
5+45	0.0082	0.03	QV				
5+50	0.0084	0.03	QV				
5+55	0.0086	0.03	QV				
6+ 0	0.0088	0.03	QV				
6+ 5	0.0090	0.03	QV				
6+10	0.0093	0.03	QV				
6+15	0.0095	0.03	QV				
6+20	0.0097	0.03	QV				
6+25	0.0099	0.03	QV				
6+30	0.0101	0.03	QV				
6+35	0.0104	0.03	QV				
6+40	0.0106	0.04	QV				
6+45	0.0109	0.04	QV				
6+50	0.0111	0.04	QV				
6+55	0.0114	0.04	QV				

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 7+ 0       0.0116      0.04  Q V       |          |          |          |
 7+ 5       0.0118      0.04  Q V       |          |          |          |
 7+10       0.0121      0.04  Q V       |          |          |          |
 7+15       0.0123      0.04  Q V       |          |          |          |
 7+20       0.0126      0.04  Q V       |          |          |          |
 7+25       0.0129      0.04  Q V       |          |          |          |
 7+30       0.0131      0.04  Q V       |          |          |          |
 7+35       0.0134      0.04  Q V       |          |          |          |
 7+40       0.0137      0.04  Q V       |          |          |          |
 7+45       0.0140      0.04  Q V       |          |          |          |
 7+50       0.0143      0.05  Q V       |          |          |          |
 7+55       0.0146      0.05  Q V       |          |          |          |
 8+ 0       0.0149      0.05  Q V       |          |          |          |
 8+ 5       0.0153      0.05  Q V       |          |          |          |
 8+10       0.0157      0.05  Q V       |          |          |          |
 8+15       0.0160      0.05  Q V       |          |          |          |
 8+20       0.0164      0.05  Q V       |          |          |          |
 8+25       0.0168      0.05  Q V       |          |          |          |
 8+30       0.0171      0.05  Q V       |          |          |          |
 8+35       0.0175      0.06  Q  V      |          |          |          |
 8+40       0.0179      0.06  Q  V      |          |          |          |
 8+45       0.0183      0.06  Q  V      |          |          |          |
 8+50       0.0187      0.06  Q  V      |          |          |          |
 8+55       0.0191      0.06  Q  V      |          |          |          |
 9+ 0       0.0195      0.06  Q  V      |          |          |          |
 9+ 5       0.0203      0.10  Q  V      |          |          |          |
 9+10       0.0211      0.12  Q  V      |          |          |          |
 9+15       0.0219      0.12  Q  V      |          |          |          |
 9+20       0.0229      0.15  Q   V     |          |          |          |
 9+25       0.0240      0.16  Q   V     |          |          |          |
 9+30       0.0251      0.16  Q   V     |          |          |          |
 9+35       0.0265      0.19  Q   V     |          |          |          |
 9+40       0.0278      0.20  Q   V     |          |          |          |
 9+45       0.0293      0.21  Q    V    |          |          |          |
 9+50       0.0309      0.24  Q    V    |          |          |          |
 9+55       0.0326      0.25  Q    V    |          |          |          |
10+ 0       0.0343      0.25  Q     V   |          |          |          |
10+ 5       0.0349      0.09  Q     V   |          |          |          |
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10+10       0.0353      0.05  Q     V   |          |          |          |
10+15       0.0357      0.05  Q     V   |          |          |          |
10+20       0.0360      0.05  Q     V   |          |          |          |
10+25       0.0364      0.05  Q     V   |          |          |          |
10+30       0.0368      0.05  Q     V   |          |          |          |
10+35       0.0379      0.17  Q     V   |          |          |          |
10+40       0.0393      0.20  Q     V   |          |          |          |
10+45       0.0407      0.20  Q      V  |          |          |          |
10+50       0.0421      0.20  Q      V  |          |          |          |
10+55       0.0435      0.21  Q      V  |          |          |          |
11+ 0       0.0449      0.21  Q      V  |          |          |          |
11+ 5       0.0462      0.18  Q       V |          |          |          |
11+10       0.0474      0.18  Q       V |          |          |          |
11+15       0.0486      0.18  Q       V |          |          |          |
11+20       0.0499      0.18  Q       V |          |          |          |
11+25       0.0511      0.18  Q       V |          |          |          |
11+30       0.0524      0.19  Q        V|          |          |          |
11+35       0.0533      0.13  Q        V|          |          |          |
11+40       0.0542      0.12  Q        V|          |          |          |
11+45       0.0550      0.12  Q        V|          |          |          |
11+50       0.0561      0.15  Q        V|          |          |          |
11+55       0.0572      0.16  Q         V          |          |          |
12+ 0       0.0584      0.17  Q         V          |          |          |
12+ 5       0.0609      0.37  |Q        V          |          |          |
12+10       0.0638      0.42  |Q         |V         |          |          |
12+15       0.0667      0.42  |Q         |V         |          |          |
12+20       0.0698      0.45  |Q         | V        |          |          |
12+25       0.0730      0.46  |Q         | V        |          |          |
12+30       0.0762      0.46  |Q         |  V       |          |          |
12+35       0.0798      0.52  | Q        |  V       |          |          |
12+40       0.0835      0.54  | Q        |   V      |          |          |
12+45       0.0872      0.54  | Q        |    V     |          |          |
12+50       0.0911      0.57  | Q        |    V     |          |          |
12+55       0.0951      0.58  | Q        |     V    |          |          |
13+ 0       0.0992      0.58  | Q        |      V   |          |          |
13+ 5       0.1042      0.73  | Q        |       V  |          |          |
13+10       0.1095      0.77  |  Q       |        V |          |          |
13+15       0.1147      0.77  |  Q       |         V|          |          |
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13+20       0.1200      0.77  |  Q       |          |V         |          |
13+25       0.1254      0.77  |  Q       |          |V         |          |
13+30       0.1307      0.77  |  Q       |          | V        |          |
13+35       0.1339      0.46  |Q         |          |  V       |          |
13+40       0.1365      0.39  |Q         |          |  V       |          |
13+45       0.1392      0.39  |Q         |          |   V      |          |
13+50       0.1419      0.39  |Q         |          |   V      |          |
13+55       0.1447      0.40  |Q         |          |    V     |          |
14+ 0       0.1474      0.40  |Q         |          |    V     |          |
14+ 5       0.1509      0.51  | Q        |          |     V    |          |
14+10       0.1547      0.54  | Q        |          |      V   |          |
14+15       0.1584      0.55  | Q        |          |      V   |          |
14+20       0.1620      0.52  | Q        |          |       V  |          |
14+25       0.1655      0.51  | Q        |          |       V  |          |
14+30       0.1691      0.52  | Q        |          |        V |          |
14+35       0.1727      0.52  | Q        |          |         V|          |
14+40       0.1763      0.52  | Q        |          |         V|          |
14+45       0.1799      0.52  | Q        |          |          |V         |
14+50       0.1833      0.50  |Q         |          |          | V        |
14+55       0.1867      0.49  |Q         |          |          | V        |
15+ 0       0.1900      0.49  |Q         |          |          |  V       |
15+ 5       0.1933      0.47  |Q         |          |          |  V       |
15+10       0.1964      0.46  |Q         |          |          |   V      |
15+15       0.1996      0.46  |Q         |          |          |   V      |
15+20       0.2026      0.44  |Q         |          |          |    V     |
15+25       0.2056      0.43  |Q         |          |          |    V     |
15+30       0.2086      0.43  |Q         |          |          |     V    |
15+35       0.2108      0.32  |Q         |          |          |     V    |
15+40       0.2129      0.30  |Q         |          |          |      V   |
15+45       0.2149      0.30  |Q         |          |          |      V   |
15+50       0.2170      0.30  |Q         |          |          |      V   |
15+55       0.2191      0.30  |Q         |          |          |       V  |
16+ 0       0.2212      0.30  |Q         |          |          |       V  |
16+ 5       0.2216      0.07  Q          |          |          |       V  |
16+10       0.2217      0.01  Q          |          |          |       V  |
16+15       0.2218      0.01  Q          |          |          |       V  |
16+20       0.2219      0.01  Q          |          |          |       V  |
16+25       0.2220      0.01  Q          |          |          |       V  |
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16+30	0.2221	0.01	Q	|	|	|	V |
16+35	0.2222	0.01	Q	|	|	|	V |
16+40	0.2223	0.01	Q	|	|	|	V |
16+45	0.2224	0.01	Q	|	|	|	V |
16+50	0.2224	0.01	Q	|	|	|	V |
16+55	0.2225	0.01	Q	|	|	|	V |
17+ 0	0.2226	0.01	Q	|	|	|	V |
17+ 5	0.2227	0.02	Q	|	|	|	V |
17+10	0.2228	0.02	Q	|	|	|	V |
17+15	0.2229	0.02	Q	|	|	|	V|
17+20	0.2230	0.02	Q	|	|	|	V|
17+25	0.2232	0.02	Q	|	|	|	V|
17+30	0.2233	0.02	Q	|	|	|	V|
17+35	0.2234	0.02	Q	|	|	|	V|
17+40	0.2235	0.02	Q	|	|	|	V|
17+45	0.2237	0.02	Q	|	|	|	V|
17+50	0.2238	0.01	Q	|	|	|	V|
17+55	0.2239	0.01	Q	|	|	|	V|
18+ 0	0.2240	0.01	Q	|	|	|	V|
18+ 5	0.2241	0.01	Q	|	|	|	V|
18+10	0.2242	0.01	Q	|	|	|	V|
18+15	0.2243	0.01	Q	|	|	|	V|
18+20	0.2243	0.01	Q	|	|	|	V|
18+25	0.2244	0.01	Q	|	|	|	V|
18+30	0.2245	0.01	Q	|	|	|	V|
18+35	0.2246	0.01	Q	|	|	|	V|
18+40	0.2247	0.01	Q	|	|	|	V|
18+45	0.2248	0.01	Q	|	|	|	V|
18+50	0.2248	0.01	Q	|	|	|	V|
18+55	0.2249	0.01	Q	|	|	|	V|
19+ 0	0.2249	0.01	Q	|	|	|	V|
19+ 5	0.2250	0.01	Q	|	|	|	V|
19+10	0.2251	0.01	Q	|	|	|	V|
19+15	0.2251	0.01	Q	|	|	|	V|
19+20	0.2252	0.01	Q	|	|	|	V|
19+25	0.2253	0.01	Q	|	|	|	V|
19+30	0.2254	0.01	Q	|	|	|	V|
19+35	0.2255	0.01	Q	|	|	|	V|

19+40	0.2256	0.01	Q	|	|	|	V|
19+45	0.2256	0.01	Q	|	|	|	V|
19+50	0.2257	0.01	Q	|	|	|	V|
19+55	0.2257	0.01	Q	|	|	|	V|
20+ 0	0.2258	0.01	Q	|	|	|	V|
20+ 5	0.2259	0.01	Q	|	|	|	V|
20+10	0.2259	0.01	Q	|	|	|	V|
20+15	0.2260	0.01	Q	|	|	|	V|
20+20	0.2261	0.01	Q	|	|	|	V|
20+25	0.2262	0.01	Q	|	|	|	V|
20+30	0.2262	0.01	Q	|	|	|	V|
20+35	0.2263	0.01	Q	|	|	|	V|
20+40	0.2264	0.01	Q	|	|	|	V|
20+45	0.2265	0.01	Q	|	|	|	V|
20+50	0.2265	0.01	Q	|	|	|	V|
20+55	0.2266	0.01	Q	|	|	|	V|
21+ 0	0.2266	0.01	Q	|	|	|	V|
21+ 5	0.2267	0.01	Q	|	|	|	V|
21+10	0.2267	0.01	Q	|	|	|	V|
21+15	0.2268	0.01	Q	|	|	|	V|
21+20	0.2269	0.01	Q	|	|	|	V|
21+25	0.2269	0.01	Q	|	|	|	V|
21+30	0.2270	0.01	Q	|	|	|	V|
21+35	0.2270	0.01	Q	|	|	|	V|
21+40	0.2271	0.01	Q	|	|	|	V|
21+45	0.2272	0.01	Q	|	|	|	V|
21+50	0.2272	0.01	Q	|	|	|	V|
21+55	0.2273	0.01	Q	|	|	|	V|
22+ 0	0.2273	0.01	Q	|	|	|	V|
22+ 5	0.2274	0.01	Q	|	|	|	V|
22+10	0.2275	0.01	Q	|	|	|	V|
22+15	0.2275	0.01	Q	|	|	|	V|
22+20	0.2276	0.01	Q	|	|	|	V|
22+25	0.2277	0.01	Q	|	|	|	V|
22+30	0.2277	0.01	Q	|	|	|	V|
22+35	0.2277	0.01	Q	|	|	|	V|
22+40	0.2278	0.01	Q	|	|	|	V|
22+45	0.2278	0.01	Q	|	|	|	V|

```
   22+50       0.2279      0.01  Q          |          |          |         V|
   22+55       0.2279      0.01  Q          |          |          |         V|
   23+ 0       0.2280      0.01  Q          |          |          |         V|
   23+ 5       0.2280      0.01  Q          |          |          |         V|
   23+10       0.2281      0.01  Q          |          |          |         V|
   23+15       0.2281      0.01  Q          |          |          |         V|
   23+20       0.2282      0.01  Q          |          |          |         V|
   23+25       0.2282      0.01  Q          |          |          |         V|
   23+30       0.2283      0.01  Q          |          |          |         V|
   23+35       0.2283      0.01  Q          |          |          |         V|
   23+40       0.2284      0.01  Q          |          |          |         V|
   23+45       0.2284      0.01  Q          |          |          |         V|
   23+50       0.2285      0.01  Q          |          |          |         V|
   23+55       0.2285      0.01  Q          |          |          |         V|
   24+ 0       0.2286      0.01  Q          |          |          |         V|
   24+ 5       0.2286      0.00  Q          |          |          |          V
---------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 7- 100 YR, 1-hr

Drainage Area = 1.85(Ac.) = 0.003 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.85(Ac.) = 0.003 Sq. Mi.
Length along longest watercourse = 220.00(Ft.)
Length along longest watercourse measured to centroid = 110.00(Ft.)
Length along longest watercourse = 0.042 Mi.
Length along longest watercourse measured to centroid = 0.021 Mi.
Difference in elevation = 1.02(Ft.)
Slope along watercourse = 24.4800 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.013 Hr.
Lag time =     0.81 Min.
25% of lag time =     0.20 Min.
40% of lag time =     0.32 Min.
Unit time =     5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.85              0.51                  0.95

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.85              1.61                  2.98

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.514(In)
Area Averaged 100-Year Rainfall =    1.610(In)

Point rain (area averaged) =    1.610(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    1.610(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     1.850           69.00          0.200
 Total Area Entered =      1.85(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306       1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

Slope of intensity-duration curve for a 1 hour storm =0.5500

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	619.074	75.943	1.416
2	0.167	1238.147	24.057	0.449
		Sum = 100.000	Sum=	1.864

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max		Low	Effective (In/Hr)
1	0.08	3.30	0.638	0.306	(	0.574)	0.332
2	0.17	4.20	0.811	0.306	(	0.730)	0.506
3	0.25	4.40	0.850	0.306	(	0.765)	0.544
4	0.33	4.80	0.927	0.306	(	0.8	

U n i t H y d r o g r a p h A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 7- 100 YR, 3-hr

Drainage Area = 1.85(Ac.) = 0.003 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.85(Ac.) = 0.003 Sq. Mi.
Length along longest watercourse = 220.00(Ft.)
Length along longest watercourse measured to centroid = 110.00(Ft.)
Length along longest watercourse = 0.042 Mi.
Length along longest watercourse measured to centroid = 0.021 Mi.
Difference in elevation = 1.02(Ft.)
Slope along watercourse = 24.4800 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.013 Hr.
Lag time =     0.81 Min.
25% of lag time =     0.20 Min.
40% of lag time =     0.32 Min.
Unit time =     5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.85              0.86                  1.60

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.85              2.25                  4.16

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.864(In)
Area Averaged 100-Year Rainfall =    2.250(In)

Point rain (area averaged) =    2.250(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.250(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     1.850           69.00          0.200
 Total Area Entered =      1.85(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306       1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	619.074	75.943	1.416
2	0.167	1238.147	24.057	0.449
			Sum = 100.000 Sum=	1.864

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max		Low	Effective (In/Hr)
1	0.08	1.30	0.351	0.306	(	0.316)	0.045
2	0.17	1.30	0.351	0.306	(	0.316)	0.045
3	0.25	1.10	0.297	(0.306)		0.267	0.030
4	0.33	1.50	0.405	0.306	(	0.364)	0.099
5	0.42	1.50	0.405	0.306	(	0.364)	0.099
6	0.50	1.80	0.486	0.306	(	0.437)	0.180
7	0.58	1.50	0.405	0.306	(	0.364)	0.099
8	0.67	1.80	0.486	0.306	(	0.437)	0.180
9	0.75	1.80	0.486	0.306	(	0.437)	0.180
10	0.83	1.50	0.405	0.306	(	0.364)	0.099
11	0.92	1.60	0.432	0.306	(	0.389)	0.126
12	1.00	1.80	0.486	0.306	(	0.437)	0.180

```
13   1.08     2.20      0.594          0.306    (  0.535)         0.288
14   1.17     2.20      0.594          0.306    (  0.535)         0.288
15   1.25     2.20      0.594          0.306    (  0.535)         0.288
16   1.33     2.00      0.540          0.306    (  0.486)         0.234
17   1.42     2.60      0.702          0.306    (  0.632)         0.396
18   1.50     2.70      0.729          0.306    (  0.656)         0.423
19   1.58     2.40      0.648          0.306    (  0.583)         0.342
20   1.67     2.70      0.729          0.306    (  0.656)         0.423
21   1.75     3.30      0.891          0.306    (  0.802)         0.585
22   1.83     3.10      0.837          0.306    (  0.753)         0.531
23   1.92     2.90      0.783          0.306    (  0.705)         0.477
24   2.00     3.00      0.810          0.306    (  0.729)         0.504
25   2.08     3.10      0.837          0.306    (  0.753)         0.531
26   2.17     4.20      1.134          0.306    (  1.021)         0.828
27   2.25     5.00      1.350          0.306    (  1.215)         1.044
28   2.33     3.50      0.945          0.306    (  0.850)         0.639
29   2.42     6.80      1.836          0.306    (  1.652)         1.530
30   2.50     7.30      1.971          0.306    (  1.774)         1.665
31   2.58     8.20      2.214          0.306    (  1.993)         1.908
32   2.67     5.90      1.593          0.306    (  1.434)         1.287
33   2.75     2.00      0.540          0.306    (  0.486)         0.234
34   2.83     1.80      0.486          0.306    (  0.437)         0.180
35   2.92     1.80      0.486          0.306    (  0.437)         0.180
36   3.00     0.60      0.162       (  0.306)       0.146         0.016
          (Loss Rate Not Used)
   Sum =     100.0                                    Sum =    16.2
    Flood volume = Effective rainfall      1.35(In)
     times area       1.9(Ac.)/[(In)/(Ft.)] =       0.2(Ac.Ft)
    Total soil loss =      0.90(In)
    Total soil loss =     0.139(Ac.Ft)
    Total rainfall =      2.25(In)
    Flood volume =        9062.0 Cubic Feet
    Total soil loss =        6047.7 Cubic Feet
    ---------------------------------------------------------------------
     Peak flow rate of this hydrograph =      3.451(CFS)
    ---------------------------------------------------------------------
    +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        3 - H O U R    S T O R M
```

R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0004	0.06	Q				
0+10	0.0010	0.08	Q				
0+15	0.0015	0.06	Q				
0+20	0.0025	0.15	Q				
0+25	0.0038	0.19	Q				
0+30	0.0059	0.30	|Q				
0+35	0.0074	0.22	QV				
0+40	0.0094	0.30	|Q				
0+45	0.0118	0.34	|QV				
0+50	0.0133	0.22	Q V				
0+55							

U n i t H y d r o g r a p h A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 7- 100 YR, 6-hr

Drainage Area = 1.85(Ac.) = 0.003 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.85(Ac.) = 0.003 Sq. Mi.
Length along longest watercourse = 220.00(Ft.)
Length along longest watercourse measured to centroid = 110.00(Ft.)
Length along longest watercourse = 0.042 Mi.
Length along longest watercourse measured to centroid = 0.021 Mi.
Difference in elevation = 1.02(Ft.)
Slope along watercourse = 24.4800 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.013 Hr.
Lag time =     0.81 Min.
25% of lag time =     0.20 Min.
40% of lag time =     0.32 Min.
Unit time =     5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.85             1.20                 2.22

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.85             2.99                 5.53

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.200(In)
Area Averaged 100-Year Rainfall =    2.990(In)

Point rain (area averaged) =    2.990(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.990(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     1.850           69.00          0.200
 Total Area Entered =      1.85(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306       1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	619.074	75.943	1.416
2	0.167	1238.147	24.057	0.449
		Sum = 100.000	Sum=	1.864

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max		Low	Effective (In/Hr)
1	0.08	0.50	0.179	(0.306)	0.161	0.018
2	0.17	0.60	0.215	(0.306)	0.194	0.022
3	0.25	0.60	0.215	(0.306)	0.194	0.022
4	0.33	0.60	0.215	(0.306)	0.194	0.022
5	0.42	0.60	0.215	(0.306)	0.194	0.022
6	0.50	0.70	0.251	(0.306)	0.226	0.025
7	0.58	0.70	0.251	(0.306)	0.226	0.025
8	0.67	0.70	0.251	(0.306)	0.226	0.025
9	0.75	0.70	0.251	(0.306)	0.226	0.025
10	0.83	0.70	0.251	(0.306)	0.226	0.025
11	0.92	0.70	0.251	(0.306)	0.226	0.025
12	1.00	0.80	0.287	(0.306)	0.258	0.029

13	1.08	0.80	0.287	(0.306)	0.258	0.029
14	1.17	0.80	0.287	(0.306)	0.258	0.029
15	1.25	0.80	0.287	(0.306)	0.258	0.029
16	1.33	0.80	0.287	(0.306)	0.258	0.029
17	1.42	0.80	0.287	(0.306)	0.258	0.029
18	1.50	0.80	0.287	(0.306)	0.258	0.029
19	1.58	0.80	0.287	(0.306)	0.258	0.029
20	1.67	0.80	0.287	(0.306)	0.258	0.029
21	1.75	0.80	0.287	(0.306)	0.258	0.029
22	1.83	0.80	0.287	(0.306)	0.258	0.029
23	1.92	0.80	0.287	(0.306)	0.258	0.029
24	2.00	0.90	0.323	(0.306)	0.291	0.032
25	2.08	0.80	0.287	(0.306)	0.258	0.029
26	2.17	0.90	0.323	(0.306)	0.291	0.032
27	2.25	0.90	0.323	(0.306)	0.291	0.032
28	2.33	0.90	0.323	(0.306)	0.291	0.032
29	2.42	0.90	0.323	(0.306)	0.291	0.032
30	2.50	0.90	0.323	(0.306)	0.291	0.032
31	2.58	0.90	0.323	(0.306)	0.291	0.032
32	2.67	0.90	0.323	(0.306)	0.291	0.032
33	2.75	1.00	0.359	0.306	(0.323)	0.053
34	2.83	1.00	0.359	0.306	(0.323)	0.053
35	2.92	1.00	0.359	0.306	(0.323)	0.053
36	3.00	1.00	0.359	0.306	(0.323)	0.053
37	3.08	1.00	0.359	0.306	(0.323)	0.053
38	3.17	1.10	0.395	0.306	(0.355)	0.089
39	3.25	1.10	0.395	0.306	(0.355)	0.089
40	3.33	1.10	0.395	0.306	(0.355)	0.089
41	3.42	1.20	0.431	0.306	(0.388)	0.125
42	3.50	1.30	0.466	0.306	(0.420)	0.161
43	3.58	1.40	0.502	0.306	(0.452)	0.197
44	3.67	1.40	0.502	0.306	(0.452)	0.197
45	3.75	1.50	0.538	0.306	(0.484)	0.233
46	3.83	1.50	0.538	0.306	(0.484)	0.233
47	3.92	1.60	0.574	0.306	(0.517)	0.268
48	4.00	1.60	0.574	0.306	(0.517)	0.268
49	4.08	1.70	0.610	0.306	(0.549)	0.304
50	4.17	1.80	0.646	0.306	(0.581)	0.340

```
51   4.25     1.90      0.682          0.306    (  0.614)         0.376
52   4.33     2.00      0.718          0.306    (  0.646)         0.412
53   4.42     2.10      0.753          0.306    (  0.678)         0.448
54   4.50     2.10      0.753          0.306    (  0.678)         0.448
55   4.58     2.20      0.789          0.306    (  0.710)         0.484
56   4.67     2.30      0.825          0.306    (  0.743)         0.520
57   4.75     2.40      0.861          0.306    (  0.775)         0.555
58   4.83     2.40      0.861          0.306    (  0.775)         0.555
59   4.92     2.50      0.897          0.306    (  0.807)         0.591
60   5.00     2.60      0.933          0.306    (  0.840)         0.627
61   5.08     3.10      1.112          0.306    (  1.001)         0.807
62   5.17     3.60      1.292          0.306    (  1.163)         0.986
63   5.25     3.90      1.399          0.306    (  1.259)         1.094
64   5.33     4.20      1.507          0.306    (  1.356)         1.201
65   5.42     4.70      1.686          0.306    (  1.518)         1.381
66   5.50     5.60      2.009          0.306    (  1.808)         1.704
67   5.58     1.90      0.682          0.306    (  0.614)         0.376
68   5.67     0.90      0.323       (  0.306)       0.291         0.032
69   5.75     0.60      0.215       (  0.306)       0.194         0.022
70   5.83     0.50      0.179       (  0.306)       0.161         0.018
71   5.92     0.30      0.108       (  0.306)       0.097         0.011
72   6.00     0.20      0.072       (  0.306)       0.065         0.007
          (Loss Rate Not Used)
   Sum =     100.0                                    Sum =    16.4
    Flood volume = Effective rainfall      1.37(In)
     times area       1.9(Ac.)/[(In)/(Ft.)] =       0.2(Ac.Ft)
    Total soil loss =      1.62(In)
    Total soil loss =     0.250(Ac.Ft)
    Total rainfall =      2.99(In)
    Flood volume =         9176.2 Cubic Feet
    Total soil loss =       10903.0 Cubic Feet
    ---------------------------------------------------------------------
     Peak flow rate of this hydrograph =      3.033(CFS)
    ---------------------------------------------------------------------
    +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        6 - H O U R    S T O R M
                    R u n o f f      H y d r o g r a p h
    ---------------------------------------------------------------------
```

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0002	0.03	Q				
0+10	0.0004	0.04	Q				
0+15	0.0007	0.04	Q				
0+20	0.0010	0.04	Q				
0+25	0.0013	0.04	Q				
0+30	0.0016	0.05	Q				
0+35	0.0019	0.05	Q				
0+40	0.0022	0.05	Q				
0+45	0.0025	0.05	Q				
0+50	0.0029	0.05	Q				
0+55	0.0032	0.05	Q				
1+ 0	0.0036	0.05	Q				
1+ 5	0.0039	0.05	Q				
1+10	0.0043	0.05	Q				
1+15	0.0047	0.05	Q				
1+20	0.0050	0.05	Q				
1+25	0.0054	0.05	QV				
1+30	0.0058	0.05	QV				
1+35	0.0061	0.05	QV				
1+40	0.0065	0.05	QV				
1+45	0.0069	0.05	QV				
1+50	0.0072	0.05	QV				
1+55	0.0076	0.05	QV				
2+ 0	0.0080	0.06	QV				
2+ 5	0.0084	0.06	QV				
2+10	0.0088	0.06	QV				
2+15	0.0092	0.06	QV				
2+20	0.0096	0.06	QV				
2+25	0.0100	0.06	QV				
2+30	0.0105	0.06	QV				

U n i t H y d r o g r a p h A n a l y s i s

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Study date 01/03/23 File: VOLT724100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 7- 100 YR, 24-hr

Drainage Area = 1.85(Ac.) = 0.003 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.85(Ac.) = 0.003 Sq. Mi.
Length along longest watercourse = 220.00(Ft.)
Length along longest watercourse measured to centroid = 110.00(Ft.)
Length along longest watercourse = 0.042 Mi.
Length along longest watercourse measured to centroid = 0.021 Mi.
Difference in elevation = 1.02(Ft.)
Slope along watercourse = 24.4800 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.013 Hr.
Lag time =     0.81 Min.
25% of lag time =     0.20 Min.
40% of lag time =     0.32 Min.
Unit time =     5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.85              2.06                 3.81

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.85              5.39                 9.97

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    2.060(In)
Area Averaged 100-Year Rainfall =    5.390(In)

Point rain (area averaged) =    5.390(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    5.390(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     1.850           69.00          0.200
 Total Area Entered =      1.85(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306       1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	619.074	75.943	1.416
2	0.167	1238.147	24.057	0.449
		Sum = 100.000	Sum=	1.864

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.043	(0.542)	0.039	0.004
2	0.17	0.07	0.043	(0.540)	0.039	0.004
3	0.25	0.07	0.043	(0.538)	0.039	0.004
4	0.33	0.10	0.065	(0.536)	0.058	0.006
5	0.42	0.10	0.065	(0.534)	0.058	0.006
6	0.50	0.10	0.065	(0.531)	0.058	0.006
7	0.58	0.10	0.065	(0.529)	0.058	0.006
8	0.67	0.10	0.065	(0.527)	0.058	0.006
9	0.75	0.10	0.065	(0.525)	0.058	0.006
10	0.83	0.13	0.086	(0.523)	0.078	0.009
11	0.92	0.13	0.086	(0.521)	0.078	0.009
12	1.00	0.13	0.086	(0.519)	0.078	0.009

13	1.08	0.10	0.065	(0.517)	0.058	0.006
14	1.17	0.10	0.065	(0.515)	0.058	0.006
15	1.25	0.10	0.065	(0.513)	0.058	0.006
16	1.33	0.10	0.065	(0.511)	0.058	0.006
17	1.42	0.10	0.065	(0.509)	0.058	0.006
18	1.50	0.10	0.065	(0.507)	0.058	0.006
19	1.58	0.10	0.065	(0.505)	0.058	0.006
20	1.67	0.10	0.065	(0.503)	0.058	0.006
21	1.75	0.10	0.065	(0.501)	0.058	0.006
22	1.83	0.13	0.086	(0.499)	0.078	0.009
23	1.92	0.13	0.086	(0.497)	0.078	0.009
24	2.00	0.13	0.086	(0.495)	0.078	0.009
25	2.08	0.13	0.086	(0.493)	0.078	0.009
26	2.17	0.13	0.086	(0.491)	0.078	0.009
27	2.25	0.13	0.086	(0.489)	0.078	0.009
28	2.33	0.13	0.086	(0.487)	0.078	0.009
29	2.42	0.13	0.086	(0.485)	0.078	0.009
30	2.50	0.13	0.086	(0.483)	0.078	0.009
31	2.58	0.17	0.108	(0.481)	0.097	0.011
32	2.67	0.17	0.108	(0.479)	0.097	0.011
33	2.75	0.17	0.108	(0.477)	0.097	0.011
34	2.83	0.17	0.108	(0.475)	0.097	0.011
35	2.92	0.17	0.108	(0.473)	0.097	0.011
36	3.00	0.17	0.108	(0.471)	0.097	0.011
37	3.08	0.17	0.108	(0.469)	0.097	0.011
38	3.17	0.17	0.108	(0.467)	0.097	0.011
39	3.25	0.17	0.108	(0.465)	0.097	0.011
40	3.33	0.17	0.108	(0.463)	0.097	0.011
41	3.42	0.17	0.108	(0.461)	0.097	0.011
42	3.50	0.17	0.108	(0.459)	0.097	0.011
43	3.58	0.17	0.108	(0.457)	0.097	0.011
44	3.67	0.17	0.108	(0.456)	0.097	0.011
45	3.75	0.17	0.108	(0.454)	0.097	0.011
46	3.83	0.20	0.129	(0.452)	0.116	0.013
47	3.92	0.20	0.129	(0.450)	0.116	0.013
48	4.00	0.20	0.129	(0.448)	0.116	0.013
49	4.08	0.20	0.129	(0.446)	0.116	0.013
50	4.17	0.20	0.129	(0.444)	0.116	0.013

51	4.25	0.20	0.129	(0.442)	0.116	0.013
52	4.33	0.23	0.151	(0.440)	0.136	0.015
53	4.42	0.23	0.151	(0.438)	0.136	0.015
54	4.50	0.23	0.151	(0.437)	0.136	0.015
55	4.58	0.23	0.151	(0.435)	0.136	0.015
56	4.67	0.23	0.151	(0.433)	0.136	0.015
57	4.75	0.23	0.151	(0.431)	0.136	0.015
58	4.83	0.27	0.172	(0.429)	0.155	0.017
59	4.92	0.27	0.172	(0.427)	0.155	0.017
60	5.00	0.27	0.172	(0.425)	0.155	0.017
61	5.08	0.20	0.129	(0.424)	0.116	0.013
62	5.17	0.20	0.129	(0.422)	0.116	0.013
63	5.25	0.20	0.129	(0.420)	0.116	0.013
64	5.33	0.23	0.151	(0.418)	0.136	0.015
65	5.42	0.23	0.151	(0.416)	0.136	0.015
66	5.50	0.23	0.151	(0.414)	0.136	0.015
67	5.58	0.27	0.172	(0.413)	0.155	0.017
68	5.67	0.27	0.172	(0.411)	0.155	0.017
69	5.75	0.27	0.172	(0.409)	0.155	0.017
70	5.83	0.27	0.172	(0.407)	0.155	0.017
71	5.92	0.27	0.172	(0.405)	0.155	0.017
72	6.00	0.27	0.172	(0.404)	0.155	0.017
73	6.08	0.30	0.194	(0.402)	0.175	0.019
74	6.17	0.30	0.194	(0.400)	0.175	0.019
75	6.25	0.30	0.194	(0.398)	0.175	0.019
76	6.33	0.30	0.194	(0.396)	0.175	0.019
77	6.42	0.30	0.194	(0.395)	0.175	0.019
78	6.50	0.30	0.194	(0.393)	0.175	0.019
79	6.58	0.33	0.216	(0.391)	0.194	0.022
80	6.67	0.33	0.216	(0.389)	0.194	0.022
81	6.75	0.33	0.216	(0.388)	0.194	0.022
82	6.83	0.33	0.216	(0.386)	0.194	0.022
83	6.92	0.33	0.216	(0.384)	0.194	0.022
84	7.00	0.33	0.216	(0.382)	0.194	0.022
85	7.08	0.33	0.216	(0.381)	0.194	0.022
86	7.17	0.33	0.216	(0.379)	0.194	0.022
87	7.25	0.33	0.216	(0.377)	0.194	0.022
88	7.33	0.37	0.237	(0.375)	0.213	0.024

89	7.42	0.37	0.237	(0.374)	0.213	0.024
90	7.50	0.37	0.237	(0.372)	0.213	0.024
91	7.58	0.40	0.259	(0.370)	0.233	0.026
92	7.67	0.40	0.259	(0.369)	0.233	0.026
93	7.75	0.40	0.259	(0.367)	0.233	0.026
94	7.83	0.43	0.280	(0.365)	0.252	0.028
95	7.92	0.43	0.280	(0.363)	0.252	0.028
96	8.00	0.43	0.280	(0.362)	0.252	0.028
97	8.08	0.50	0.323	(0.360)	0.291	0.032
98	8.17	0.50	0.323	(0.358)	0.291	0.032
99	8.25	0.50	0.323	(0.357)	0.291	0.032
100	8.33	0.50	0.323	(0.355)	0.291	0.032
101	8.42	0.50	0.323	(0.353)	0.291	0.032
102	8.50	0.50	0.323	(0.352)	0.291	0.032
103	8.58	0.53	0.345	(0.350)	0.310	0.034
104	8.67	0.53	0.345	(0.348)	0.310	0.034
105	8.75	0.53	0.345	(0.347)	0.310	0.034
106	8.83	0.57	0.367	(0.345)	0.330	0.037
107	8.92	0.57	0.367	(0.344)	0.330	0.037
108	9.00	0.57	0.367	(0.342)	0.330	0.037
109	9.08	0.63	0.410	0.340	(0.369)	0.069
110	9.17	0.63	0.410	0.339	(0.369)	0.071
111	9.25	0.63	0.410	0.337	(0.369)	0.073
112	9.33	0.67	0.431	0.335	(0.388)	0.096
113	9.42	0.67	0.431	0.334	(0.388)	0.097
114	9.50	0.67	0.431	0.332	(0.388)	0.099
115	9.58	0.70	0.453	0.331	(0.407)	0.122
116	9.67	0.70	0.453	0.329	(0.407)	0.124
117	9.75	0.70	0.453	0.328	(0.407)	0.125
118	9.83	0.73	0.474	0.326	(0.427)	0.148
119	9.92	0.73	0.474	0.324	(0.427)	0.150
120	10.00	0.73	0.474	0.323	(0.427)	0.152
121	10.08	0.50	0.323	(0.321)	0.291	0.032
122	10.17	0.50	0.323	(0.320)	0.291	0.032
123	10.25	0.50	0.323	(0.318)	0.291	0.032
124	10.33	0.50	0.323	(0.317)	0.291	0.032
125	10.42	0.50	0.323	(0.315)	0.291	0.032
126	10.50	0.50	0.323	(0.314)	0.291	0.032

127	10.58	0.67	0.431	0.312	(	0.388)	0.119
128	10.67	0.67	0.431	0.310	(	0.388)	0.121
129	10.75	0.67	0.431	0.309	(	0.388)	0.122
130	10.83	0.67	0.431	0.307	(	0.388)	0.124
131	10.92	0.67	0.431	0.306	(	0.388)	0.125
132	11.00	0.67	0.431	0.304	(	0.388)	0.127
133	11.08	0.63	0.410	0.303	(	0.369)	0.107
134	11.17	0.63	0.410	0.301	(	0.369)	0.108
135	11.25	0.63	0.410	0.300	(	0.369)	0.110
136	11.33	0.63	0.410	0.298	(	0.369)	0.111
137	11.42	0.63	0.410	0.297	(	0.369)	0.113
138	11.50	0.63	0.410	0.296	(	0.369)	0.114
139	11.58	0.57	0.367	0.294	(	0.330)	0.072
140	11.67	0.57	0.367	0.293	(	0.330)	0.074
141	11.75	0.57	0.367	0.291	(	0.330)	0.075
142	11.83	0.60	0.388	0.290	(	0.349)	0.098
143	11.92	0.60	0.388	0.288	(	0.349)	0.100
144	12.00	0.60	0.388	0.287	(	0.349)	0.101
145	12.08	0.83	0.539	0.285	(	0.485)	0.254
146	12.17	0.83	0.539	0.284	(	0.485)	0.255
147	12.25	0.83	0.539	0.283	(	0.485)	0.256
148	12.33	0.87	0.561	0.281	(	0.505)	0.279
149	12.42	0.87	0.561	0.280	(	0.505)	0.281
150	12.50	0.87	0.561	0.278	(	0.505)	0.282
151	12.58	0.93	0.604	0.277	(	0.543)	0.327
152	12.67	0.93	0.604	0.275	(	0.543)	0.328
153	12.75	0.93	0.604	0.274	(	0.543)	0.330
154	12.83	0.97	0.625	0.273	(	0.563)	0.353
155	12.92	0.97	0.625	0.271	(	0.563)	0.354
156	13.00	0.97	0.625	0.270	(	0.563)	0.355
157	13.08	1.13	0.733	0.269	(	0.660)	0.464
158	13.17	1.13	0.733	0.267	(	0.660)	0.466
159	13.25	1.13	0.733	0.266	(	0.660)	0.467
160	13.33	1.13	0.733	0.265	(	0.660)	0.469
161	13.42	1.13	0.733	0.263	(	0.660)	0.470
162	13.50	1.13	0.733	0.262	(	0.660)	0.471
163	13.58	0.77	0.496	0.261	(	0.446)	0.235
164	13.67	0.77	0.496	0.259	(	0.446)	0.237

165	13.75	0.77	0.496	0.258	(0.446)	0.238
166	13.83	0.77	0.496	0.257	(0.446)	0.239
167	13.92	0.77	0.496	0.255	(0.446)	0.241
168	14.00	0.77	0.496	0.254	(0.446)	0.242
169	14.08	0.90	0.582	0.253	(0.524)	0.329
170	14.17	0.90	0.582	0.251	(0.524)	0.331
171	14.25	0.90	0.582	0.250	(0.524)	0.332
172	14.33	0.87	0.561	0.249	(0.505)	0.312
173	14.42	0.87	0.561	0.248	(0.505)	0.313
174	14.50	0.87	0.561	0.246	(0.505)	0.314
175	14.58	0.87	0.561	0.245	(0.505)	0.316
176	14.67	0.87	0.561	0.244	(0.505)	0.317
177	14.75	0.87	0.561	0.242	(0.505)	0.318
178	14.83	0.83	0.539	0.241	(0.485)	0.298
179	14.92	0.83	0.539	0.240	(0.485)	0.299
180	15.00	0.83	0.539	0.239	(0.485)	0.300
181	15.08	0.80	0.517	0.238	(0.466)	0.280
182	15.17	0.80	0.517	0.236	(0.466)	0.281
183	15.25	0.80	0.517	0.235	(0.466)	0.282
184	15.33	0.77	0.496	0.234	(0.446)	0.262
185	15.42	0.77	0.496	0.233	(0.446)	0.263
186	15.50	0.77	0.496	0.232	(0.446)	0.264
187	15.58	0.63	0.410	0.230	(0.369)	0.179
188	15.67	0.63	0.410	0.229	(0.369)	0.180
189	15.75	0.63	0.410	0.228	(0.369)	0.182
190	15.83	0.63	0.410	0.227	(0.369)	0.183
191	15.92	0.63	0.410	0.226	(0.369)	0.184
192	16.00	0.63	0.410	0.224	(0.369)	0.185
193	16.08	0.13	0.086	(0.223)	0.078	0.009
194	16.17	0.13	0.086	(0.222)	0.078	0.009
195	16.25	0.13	0.086	(0.221)	0.078	0.009
196	16.33	0.13	0.086	(0.220)	0.078	0.009
197	16.42	0.13	0.086	(0.219)	0.078	0.009
198	16.50	0.13	0.086	(0.218)	0.078	0.009
199	16.58	0.10	0.065	(0.217)	0.058	0.006
200	16.67	0.10	0.065	(0.215)	0.058	0.006
201	16.75	0.10	0.065	(0.214)	0.058	0.006
202	16.83	0.10	0.065	(0.213)	0.058	0.006

203	16.92	0.10	0.065	(0.212)	0.058	0.006
204	17.00	0.10	0.065	(0.211)	0.058	0.006
205	17.08	0.17	0.108	(0.210)	0.097	0.011
206	17.17	0.17	0.108	(0.209)	0.097	0.011
207	17.25	0.17	0.108	(0.208)	0.097	0.011
208	17.33	0.17	0.108	(0.207)	0.097	0.011
209	17.42	0.17	0.108	(0.206)	0.097	0.011
210	17.50	0.17	0.108	(0.205)	0.097	0.011
211	17.58	0.17	0.108	(0.204)	0.097	0.011
212	17.67	0.17	0.108	(0.203)	0.097	0.011
213	17.75	0.17	0.108	(0.202)	0.097	0.011
214	17.83	0.13	0.086	(0.201)	0.078	0.009
215	17.92	0.13	0.086	(0.200)	0.078	0.009
216	18.00	0.13	0.086	(0.199)	0.078	0.009
217	18.08	0.13	0.086	(0.198)	0.078	0.009
218	18.17	0.13	0.086	(0.197)	0.078	0.009
219	18.25	0.13	0.086	(0.196)	0.078	0.009
220	18.33	0.13	0.086	(0.195)	0.078	0.009
221	18.42	0.13	0.086	(0.194)	0.078	0.009
222	18.50	0.13	0.086	(0.193)	0.078	0.009
223	18.58	0.10	0.065	(0.192)	0.058	0.006
224	18.67	0.10	0.065	(0.191)	0.058	0.006
225	18.75	0.10	0.065	(0.190)	0.058	0.006
226	18.83	0.07	0.043	(0.189)	0.039	0.004
227	18.92	0.07	0.043	(0.188)	0.039	0.004
228	19.00	0.07	0.043	(0.188)	0.039	0.004
229	19.08	0.10	0.065	(0.187)	0.058	0.006
230	19.17	0.10	0.065	(0.186)	0.058	0.006
231	19.25	0.10	0.065	(0.185)	0.058	0.006
232	19.33	0.13	0.086	(0.184)	0.078	0.009
233	19.42	0.13	0.086	(0.183)	0.078	0.009
234	19.50	0.13	0.086	(0.182)	0.078	0.009
235	19.58	0.10	0.065	(0.182)	0.058	0.006
236	19.67	0.10	0.065	(0.181)	0.058	0.006
237	19.75	0.10	0.065	(0.180)	0.058	0.006
238	19.83	0.07	0.043	(0.179)	0.039	0.004
239	19.92	0.07	0.043	(0.178)	0.039	0.004
240	20.00	0.07	0.043	(0.178)	0.039	0.004

241	20.08	0.10	0.065	(0.177)	0.058	0.006
242	20.17	0.10	0.065	(0.176)	0.058	0.006
243	20.25	0.10	0.065	(0.175)	0.058	0.006
244	20.33	0.10	0.065	(0.174)	0.058	0.006
245	20.42	0.10	0.065	(0.174)	0.058	0.006
246	20.50	0.10	0.065	(0.173)	0.058	0.006
247	20.58	0.10	0.065	(0.172)	0.058	0.006
248	20.67	0.10	0.065	(0.171)	0.058	0.006
249	20.75	0.10	0.065	(0.171)	0.058	0.006
250	20.83	0.07	0.043	(0.170)	0.039	0.004
251	20.92	0.07	0.043	(0.169)	0.039	0.004
252	21.00	0.07	0.043	(0.169)	0.039	0.004
253	21.08	0.10	0.065	(0.168)	0.058	0.006
254	21.17	0.10	0.065	(0.167)	0.058	0.006
255	21.25	0.10	0.065	(0.167)	0.058	0.006
256	21.33	0.07	0.043	(0.166)	0.039	0.004
257	21.42	0.07	0.043	(0.165)	0.039	0.004
258	21.50	0.07	0.043	(0.165)	0.039	0.004
259	21.58	0.10	0.065	(0.164)	0.058	0.006
260	21.67	0.10	0.065	(0.164)	0.058	0.006
261	21.75	0.10	0.065	(0.163)	0.058	0.006
262	21.83	0.07	0.043	(0.163)	0.039	0.004
263	21.92	0.07	0.043	(0.162)	0.039	0.004
264	22.00	0.07	0.043	(0.161)	0.039	0.004
265	22.08	0.10	0.065	(0.161)	0.058	0.006
266	22.17	0.10	0.065	(0.160)	0.058	0.006
267	22.25	0.10	0.065	(0.160)	0.058	0.006
268	22.33	0.07	0.043	(0.159)	0.039	0.004
269	22.42	0.07	0.043	(0.159)	0.039	0.004
270	22.50	0.07	0.043	(0.158)	0.039	0.004
271	22.58	0.07	0.043	(0.158)	0.039	0.004
272	22.67	0.07	0.043	(0.157)	0.039	0.004
273	22.75	0.07	0.043	(0.157)	0.039	0.004
274	22.83	0.07	0.043	(0.157)	0.039	0.004
275	22.92	0.07	0.043	(0.156)	0.039	0.004
276	23.00	0.07	0.043	(0.156)	0.039	0.004
277	23.08	0.07	0.043	(0.155)	0.039	0.004
278	23.17	0.07	0.043	(0.155)	0.039	0.004

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279  23.25     0.07      0.043       (  0.155)       0.039        0.004
280  23.33     0.07      0.043       (  0.155)       0.039        0.004
281  23.42     0.07      0.043       (  0.154)       0.039        0.004
282  23.50     0.07      0.043       (  0.154)       0.039        0.004
283  23.58     0.07      0.043       (  0.154)       0.039        0.004
284  23.67     0.07      0.043       (  0.153)       0.039        0.004
285  23.75     0.07      0.043       (  0.153)       0.039        0.004
286  23.83     0.07      0.043       (  0.153)       0.039        0.004
287  23.92     0.07      0.043       (  0.153)       0.039        0.004
288  24.00     0.07      0.043       (  0.153)       0.039        0.004
           (Loss Rate Not Used)
    Sum =     100.0                                    Sum =    20.2
     Flood volume = Effective rainfall      1.68(In)
      times area       1.9(Ac.)/[(In)/(Ft.)] =       0.3(Ac.Ft)
     Total soil loss =      3.71(In)
     Total soil loss =     0.572(Ac.Ft)
     Total rainfall =      5.39(In)
     Flood volume =       11301.3 Cubic Feet
     Total soil loss =       24895.2 Cubic Feet
     ---------------------------------------------------------------------
      Peak flow rate of this hydrograph =      0.878(CFS)
     ---------------------------------------------------------------------
     +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                         24 - H O U R    S T O R M
                    R u n o f f      H y d r o g r a p h
     ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

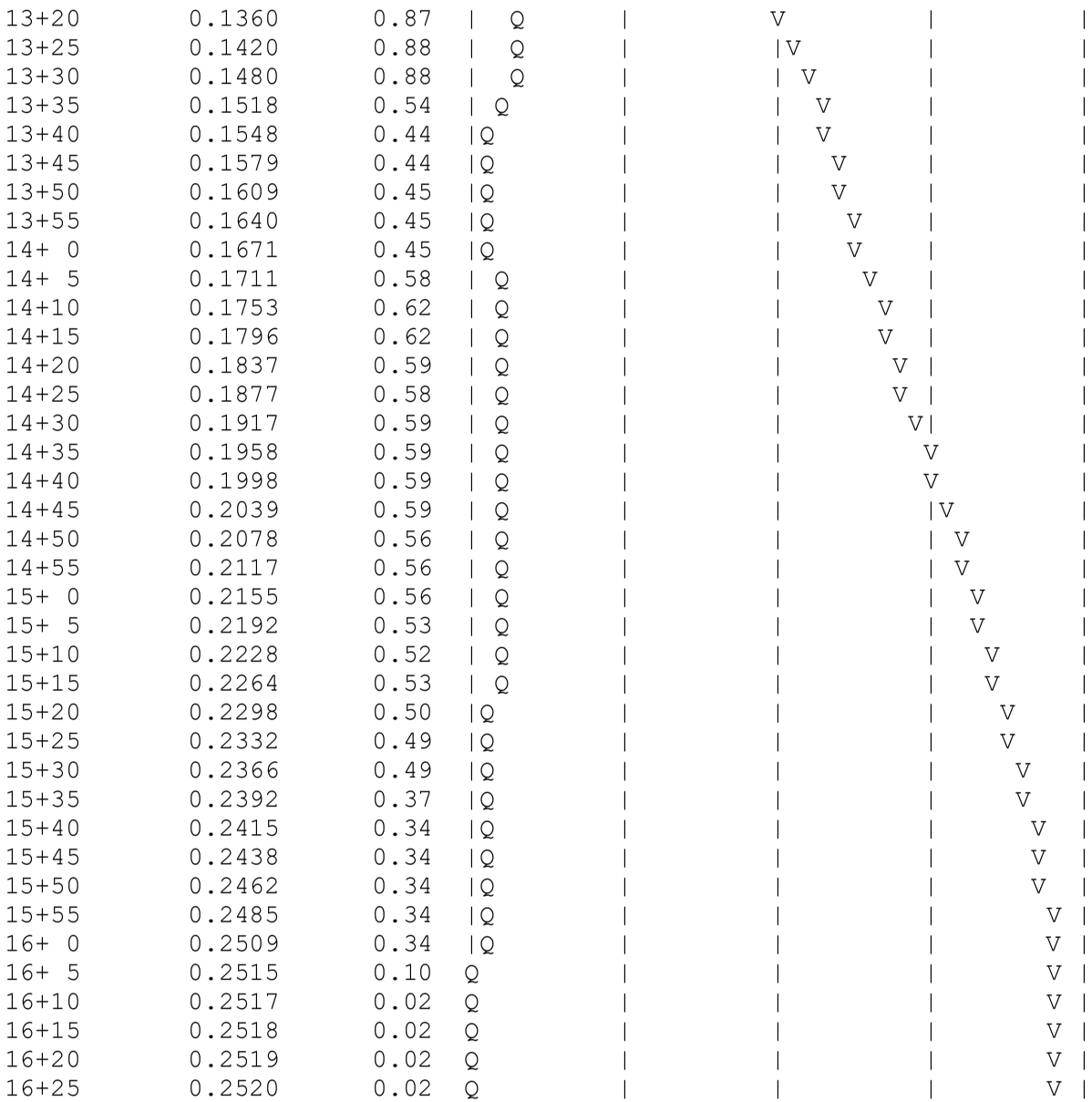
     ---------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
 ---------------------------------------------------------------------
   0+ 5       0.0000      0.01  Q          |         |         |         |
   0+10       0.0001      0.01  Q          |         |         |         |
   0+15       0.0002      0.01  Q          |         |         |         |
   0+20       0.0002      0.01  Q          |         |         |         |
   0+25       0.0003      0.01  Q          |         |         |         |
   0+30       0.0004      0.01  Q          |         |         |         |
   0+35       0.0005      0.01  Q          |         |         |         |
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0+40	0.0006	0.01	Q				
0+45	0.0006	0.01	Q				
0+50	0.0007	0.02	Q				
0+55	0.0009	0.02	Q				
1+ 0	0.0010	0.02	Q				
1+ 5	0.0011	0.01	Q				
1+10	0.0011	0.01	Q				
1+15	0.0012	0.01	Q				
1+20	0.0013	0.01	Q				
1+25	0.0014	0.01	Q				
1+30	0.0015	0.01	Q				
1+35	0.0016	0.01	Q				
1+40	0.0016	0.01	Q				
1+45	0.0017	0.01	Q				
1+50	0.0018	0.02	Q				
1+55	0.0019	0.02	Q				
2+ 0	0.0021	0.02	Q				
2+ 5	0.0022	0.02	Q				
2+10	0.0023	0.02	Q				
2+15	0.0024	0.02	Q				
2+20	0.0025	0.02	Q				
2+25	0.0026	0.02	Q				
2+30	0.0027	0.02	Q				
2+35	0.0028	0.02	Q				
2+40	0.0030	0.02	Q				
2+45	0.0031	0.02	Q				
2+50	0.0033	0.02	Q				
2+55	0.0034	0.02	Q				
3+ 0	0.0035	0.02	Q				
3+ 5	0.0037	0.02	Q				
3+10	0.0038	0.02	Q				
3+15	0.0040	0.02	Q				
3+20	0.0041	0.02	Q				
3+25	0.0042	0.02	Q				
3+30	0.0044	0.02	Q				
3+35	0.0045	0.02	Q				
3+40	0.0046	0.02	Q				
3+45	0.0048	0.02	Q				

3+50	0.0049	0.02	Q				
3+55	0.0051	0.02	Q				
4+ 0	0.0053	0.02	Q				
4+ 5	0.0054	0.02	Q				
4+10	0.0056	0.02	Q				
4+15	0.0058	0.02	Q				
4+20	0.0060	0.03	Q				
4+25	0.0062	0.03	Q				
4+30	0.0064	0.03	Q				
4+35	0.0065	0.03	QV				
4+40	0.0067	0.03	QV				
4+45	0.0069	0.03	QV				
4+50	0.0071	0.03	QV				
4+55	0.0074	0.03	QV				
5+ 0	0.0076	0.03	QV				
5+ 5	0.0078	0.03	QV				
5+10	0.0079	0.02	QV				
5+15	0.0081	0.02	QV				
5+20	0.0083	0.03	QV				
5+25	0.0085	0.03	QV				
5+30	0.0087	0.03	QV				
5+35	0.0089	0.03	QV				
5+40	0.0091	0.03	QV				
5+45	0.0093	0.03	QV				
5+50	0.0096	0.03	QV				
5+55	0.0098	0.03	QV				
6+ 0	0.0100	0.03	QV				
6+ 5	0.0102	0.04	QV				
6+10	0.0105	0.04	QV				
6+15	0.0107	0.04	QV				
6+20	0.0110	0.04	QV				
6+25	0.0112	0.04	QV				
6+30	0.0115	0.04	QV				
6+35	0.0118	0.04	QV				
6+40	0.0120	0.04	QV				
6+45	0.0123	0.04	QV				
6+50	0.0126	0.04	QV				
6+55	0.0129	0.04	QV				

7+ 0	0.0131	0.04	Q V	|	|	|	|
7+ 5	0.0134	0.04	Q V	|	|	|	|
7+10	0.0137	0.04	Q V	|	|	|	|
7+15	0.0140	0.04	Q V	|	|	|	|
7+20	0.0143	0.04	Q V	|	|	|	|
7+25	0.0146	0.04	Q V	|	|	|	|
7+30	0.0149	0.04	Q V	|	|	|	|
7+35	0.0152	0.05	Q V	|	|	|	|
7+40	0.0155	0.05	Q V	|	|	|	|
7+45	0.0159	0.05	Q V	|	|	|	|
7+50	0.0162	0.05	Q V	|	|	|	|
7+55	0.0166	0.05	Q V	|	|	|	|
8+ 0	0.0169	0.05	Q V	|	|	|	|
8+ 5	0.0174	0.06	Q V	|	|	|	|
8+10	0.0178	0.06	Q V	|	|	|	|
8+15	0.0182	0.06	Q V	|	|	|	|
8+20	0.0186	0.06	Q V	|	|	|	|
8+25	0.0190	0.06	Q V	|	|	|	|
8+30	0.0194	0.06	Q V	|	|	|	|
8+35	0.0199	0.06	Q V	|	|	|	|
8+40	0.0203	0.06	Q V	|	|	|	|
8+45	0.0208	0.06	Q V	|	|	|	|
8+50	0.0212	0.07	Q V	|	|	|	|
8+55	0.0217	0.07	Q V	|	|	|	|
9+ 0	0.0222	0.07	Q V	|	|	|	|
9+ 5	0.0229	0.11	Q V	|	|	|	|
9+10	0.0239	0.13	Q V	|	|	|	|
9+15	0.0248	0.13	Q V	|	|	|	|
9+20	0.0259	0.17	Q V	|	|	|	|
9+25	0.0272	0.18	Q V	|	|	|	|
9+30	0.0284	0.18	Q V	|	|	|	|
9+35	0.0299	0.22	Q V	|	|	|	|
9+40	0.0315	0.23	Q V	|	|	|	|
9+45	0.0331	0.23	Q V	|	|	|	|
9+50	0.0350	0.27	|Q V	|	|	|	|
9+55	0.0369	0.28	|Q V	|	|	|	|
10+ 0	0.0388	0.28	|Q V	|	|	|	|
10+ 5	0.0396	0.11	Q V	|	|	|	|

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10+10       0.0400      0.06  Q     V   |         |         |         |
10+15       0.0404      0.06  Q     V   |         |         |         |
10+20       0.0409      0.06  Q     V   |         |         |         |
10+25       0.0413      0.06  Q     V   |         |         |         |
10+30       0.0417      0.06  Q     V   |         |         |         |
10+35       0.0430      0.18  Q     V   |         |         |         |
10+40       0.0445      0.22  Q     V   |         |         |         |
10+45       0.0461      0.23  Q      V  |         |         |         |
10+50       0.0477      0.23  Q      V  |         |         |         |
10+55       0.0493      0.23  Q      V  |         |         |         |
11+ 0       0.0509      0.24  Q      V  |         |         |         |
11+ 5       0.0523      0.21  Q       V |         |         |         |
11+10       0.0537      0.20  Q       V |         |         |         |
11+15       0.0551      0.20  Q       V |         |         |         |
11+20       0.0565      0.21  Q       V |         |         |         |
11+25       0.0580      0.21  Q       V |         |         |         |
11+30       0.0594      0.21  Q        V|         |         |         |
11+35       0.0605      0.15  Q        V|         |         |         |
11+40       0.0614      0.14  Q        V|         |         |         |
11+45       0.0624      0.14  Q        V|         |         |         |
11+50       0.0636      0.17  Q        V|         |         |         |
11+55       0.0649      0.19  Q         V         |         |         |
12+ 0       0.0662      0.19  Q         V         |         |         |
12+ 5       0.0690      0.40  |Q        V         |         |         |
12+10       0.0722      0.48  |Q        |V        |         |         |
12+15       0.0755      0.48  |Q        |V        |         |         |
12+20       0.0790      0.51  | Q       | V       |         |         |
12+25       0.0826      0.52  | Q       | V       |         |         |
12+30       0.0863      0.53  | Q       |  V      |         |         |
12+35       0.0903      0.59  | Q       |  V      |         |         |
12+40       0.0945      0.61  | Q       |   V     |         |         |
12+45       0.0988      0.61  | Q       |    V    |         |         |
12+50       0.1032      0.65  | Q       |    V    |         |         |
12+55       0.1078      0.66  | Q       |     V   |         |         |
13+ 0       0.1123      0.66  | Q       |      V  |         |         |
13+ 5       0.1180      0.82  |  Q      |       V |         |         |
13+10       0.1239      0.87  |  Q      |        V|         |         |
13+15       0.1299      0.87  |  Q      |         V         |         |
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13+20	0.1360	0.87	Q	V		
13+25	0.1420	0.88	Q	V		
13+30	0.1480	0.88	Q	V		
13+35	0.1518	0.54	Q	V		
13+40	0.1548	0.44	Q	V		
13+45	0.1579	0.44	Q	V		
13+50	0.1609	0.45	Q	V		
13+55	0.1640	0.45	Q	V		
14+ 0	0.1671	0.45	Q	V		
14+ 5	0.1711	0.58	Q	V		
14+10	0.1753	0.62	Q	V		
14+15	0.1796	0.62	Q	V		
14+20	0.1837	0.59	Q	V		
14+25	0.1877	0.58	Q	V		
14+30	0.1917	0.59	Q	V		
14+35	0.1958	0.59	Q	V		
14+40	0.1998	0.59	Q	V		
14+45	0.2039	0.59	Q	V		
14+50	0.2078	0.56	Q	V		
14+55	0.2117	0.56	Q	V		
15+ 0	0.2155	0.56	Q	V		
15+ 5	0.2192	0.53	Q	V		
15+10	0.2228	0.52	Q	V		
15+15	0.2264	0.53	Q	V		
15+20	0.2298	0.50	Q	V		
15+25	0.2332	0.49	Q	V		
15+30	0.2366	0.49	Q	V		
15+35	0.2392	0.37	Q	V		
15+40	0.2415	0.34	Q	V		
15+45	0.2438	0.34	Q	V		
15+50	0.2462	0.34	Q	V		
15+55	0.2485	0.34	Q	V		
16+ 0	0.2509	0.34	Q	V		
16+ 5	0.2515	0.10	Q	V		
16+10	0.2517	0.02	Q	V		
16+15	0.2518	0.02	Q	V		
16+20	0.2519	0.02	Q	V		
16+25	0.2520	0.02	Q	V		

16+30	0.2521	0.02	Q	|	|	|	V |
16+35	0.2522	0.01	Q	|	|	|	V |
16+40	0.2523	0.01	Q	|	|	|	V |
16+45	0.2524	0.01	Q	|	|	|	V |
16+50	0.2524	0.01	Q	|	|	|	V |
16+55	0.2525	0.01	Q	|	|	|	V |
17+ 0	0.2526	0.01	Q	|	|	|	V |
17+ 5	0.2527	0.02	Q	|	|	|	V |
17+10	0.2529	0.02	Q	|	|	|	V |
17+15	0.2530	0.02	Q	|	|	|	V|
17+20	0.2531	0.02	Q	|	|	|	V|
17+25	0.2533	0.02	Q	|	|	|	V|
17+30	0.2534	0.02	Q	|	|	|	V|
17+35	0.2536	0.02	Q	|	|	|	V|
17+40	0.2537	0.02	Q	|	|	|	V|
17+45	0.2538	0.02	Q	|	|	|	V|
17+50	0.2540	0.02	Q	|	|	|	V|
17+55	0.2541	0.02	Q	|	|	|	V|
18+ 0	0.2542	0.02	Q	|	|	|	V|
18+ 5	0.2543	0.02	Q	|	|	|	V|
18+10	0.2544	0.02	Q	|	|	|	V|
18+15	0.2545	0.02	Q	|	|	|	V|
18+20	0.2546	0.02	Q	|	|	|	V|
18+25	0.2547	0.02	Q	|	|	|	V|
18+30	0.2548	0.02	Q	|	|	|	V|
18+35	0.2549	0.01	Q	|	|	|	V|
18+40	0.2550	0.01	Q	|	|	|	V|
18+45	0.2551	0.01	Q	|	|	|	V|
18+50	0.2552	0.01	Q	|	|	|	V|
18+55	0.2552	0.01	Q	|	|	|	V|
19+ 0	0.2553	0.01	Q	|	|	|	V|
19+ 5	0.2553	0.01	Q	|	|	|	V|
19+10	0.2554	0.01	Q	|	|	|	V|
19+15	0.2555	0.01	Q	|	|	|	V|
19+20	0.2556	0.02	Q	|	|	|	V|
19+25	0.2557	0.02	Q	|	|	|	V|
19+30	0.2558	0.02	Q	|	|	|	V|
19+35	0.2559	0.01	Q	|	|	|	V|

19+40	0.2560	0.01	Q	|	|	|	V|
19+45	0.2561	0.01	Q	|	|	|	V|
19+50	0.2562	0.01	Q	|	|	|	V|
19+55	0.2562	0.01	Q	|	|	|	V|
20+ 0	0.2563	0.01	Q	|	|	|	V|
20+ 5	0.2563	0.01	Q	|	|	|	V|
20+10	0.2564	0.01	Q	|	|	|	V|
20+15	0.2565	0.01	Q	|	|	|	V|
20+20	0.2566	0.01	Q	|	|	|	V|
20+25	0.2567	0.01	Q	|	|	|	V|
20+30	0.2568	0.01	Q	|	|	|	V|
20+35	0.2568	0.01	Q	|	|	|	V|
20+40	0.2569	0.01	Q	|	|	|	V|
20+45	0.2570	0.01	Q	|	|	|	V|
20+50	0.2571	0.01	Q	|	|	|	V|
20+55	0.2571	0.01	Q	|	|	|	V|
21+ 0	0.2572	0.01	Q	|	|	|	V|
21+ 5	0.2573	0.01	Q	|	|	|	V|
21+10	0.2573	0.01	Q	|	|	|	V|
21+15	0.2574	0.01	Q	|	|	|	V|
21+20	0.2575	0.01	Q	|	|	|	V|
21+25	0.2575	0.01	Q	|	|	|	V|
21+30	0.2576	0.01	Q	|	|	|	V|
21+35	0.2577	0.01	Q	|	|	|	V|
21+40	0.2578	0.01	Q	|	|	|	V|
21+45	0.2578	0.01	Q	|	|	|	V|
21+50	0.2579	0.01	Q	|	|	|	V|
21+55	0.2580	0.01	Q	|	|	|	V|
22+ 0	0.2580	0.01	Q	|	|	|	V|
22+ 5	0.2581	0.01	Q	|	|	|	V|
22+10	0.2582	0.01	Q	|	|	|	V|
22+15	0.2583	0.01	Q	|	|	|	V|
22+20	0.2583	0.01	Q	|	|	|	V|
22+25	0.2584	0.01	Q	|	|	|	V|
22+30	0.2584	0.01	Q	|	|	|	V|
22+35	0.2585	0.01	Q	|	|	|	V|
22+40	0.2585	0.01	Q	|	|	|	V|
22+45	0.2586	0.01	Q	|	|	|	V|

```
   22+50       0.2587      0.01  Q          |          |          |         V|
   22+55       0.2587      0.01  Q          |          |          |         V|
   23+ 0       0.2588      0.01  Q          |          |          |         V|
   23+ 5       0.2588      0.01  Q          |          |          |         V|
   23+10       0.2589      0.01  Q          |          |          |         V|
   23+15       0.2589      0.01  Q          |          |          |         V|
   23+20       0.2590      0.01  Q          |          |          |         V|
   23+25       0.2590      0.01  Q          |          |          |         V|
   23+30       0.2591      0.01  Q          |          |          |         V|
   23+35       0.2592      0.01  Q          |          |          |         V|
   23+40       0.2592      0.01  Q          |          |          |         V|
   23+45       0.2593      0.01  Q          |          |          |         V|
   23+50       0.2593      0.01  Q          |          |          |         V|
   23+55       0.2594      0.01  Q          |          |          |         V|
   24+ 0       0.2594      0.01  Q          |          |          |         V|
   24+ 5       0.2594      0.00  Q          |          |          |          V
---------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 8- 100 YR, 1-hr

Drainage Area = 0.54(Ac.) = 0.001 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 0.54(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 70.00(Ft.)
Length along longest watercourse measured to centroid = 35.00(Ft.)
Length along longest watercourse = 0.013 Mi.
Length along longest watercourse measured to centroid = 0.007 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 75.4286 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.005 Hr.
Lag time =     0.27 Min.
25% of lag time =     0.07 Min.
40% of lag time =     0.11 Min.
Unit time =     5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.54             0.51                 0.28

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.54             1.61                 0.87

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.514(In)
Area Averaged 100-Year Rainfall =    1.610(In)

Point rain (area averaged) =    1.610(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    1.610(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     0.540           69.00          0.200
 Total Area Entered =      0.54(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306       1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

Slope of intensity-duration curve for a 1 hour storm =0.5500

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	100.000	0.544
		Sum = 100.000	Sum= 0.544

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	3.30	0.638	0.306	(0.574)	0.332
2	0.17	4.20	0.811	0.306	(0.730)	0.506
3	0.25	4.40	0.850	0.306	(0.765)	0.544
4	0.33	4.80	0.927	0.306	(0.835)	0.622
5	0.42	5.20	1.005	0.306		

U n i t H y d r o g r a p h A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 8- 100 YR, 3-hr

Drainage Area = 0.54(Ac.) = 0.001 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 0.54(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 70.00(Ft.)
Length along longest watercourse measured to centroid = 35.00(Ft.)
Length along longest watercourse = 0.013 Mi.
Length along longest watercourse measured to centroid = 0.007 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 75.4286 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.005 Hr.
Lag time =     0.27 Min.
25% of lag time =     0.07 Min.
40% of lag time =     0.11 Min.
Unit time =     5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.54             0.86                 0.47

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.54             2.25                 1.22

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.864(In)
Area Averaged 100-Year Rainfall =    2.250(In)

Point rain (area averaged) =    2.250(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.250(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     0.540           69.00         0.200
 Total Area Entered =      0.54(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306       1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	1830.487	100.000	0.544
		Sum = 100.000	Sum= 0.544

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.351	0.306	(0.316)	0.045
2	0.17	1.30	0.351	0.306	(0.316)	0.045
3	0.25	1.10	0.297	(0.306)	0.267	0.030
4	0.33	1.50	0.405	0.306	(0.364)	0.099
5	0.42	1.50	0.405	0.306	(0.364)	0.099
6	0.50	1.80	0.486	0.306	(0.437)	0.180
7	0.58	1.50	0.405	0.306	(0.364)	0.099
8	0.67	1.80	0.486	0.306	(0.437)	0.180
9	0.75	1.80	0.486	0.306	(0.437)	0.180
10	0.83	1.50	0.405	0.306	(0.364)	0.099
11	0.92	1.60	0.432	0.306	(0.389)	0.126
12	1.00	1.80	0.486	0.306	(0.437)	0.180
13	1.08	2.20	0.594	0.306	(0.535)	0.288

```
14   1.17     2.20      0.594          0.306    (  0.535)         0.288
15   1.25     2.20      0.594          0.306    (  0.535)         0.288
16   1.33     2.00      0.540          0.306    (  0.486)         0.234
17   1.42     2.60      0.702          0.306    (  0.632)         0.396
18   1.50     2.70      0.729          0.306    (  0.656)         0.423
19   1.58     2.40      0.648          0.306    (  0.583)         0.342
20   1.67     2.70      0.729          0.306    (  0.656)         0.423
21   1.75     3.30      0.891          0.306    (  0.802)         0.585
22   1.83     3.10      0.837          0.306    (  0.753)         0.531
23   1.92     2.90      0.783          0.306    (  0.705)         0.477
24   2.00     3.00      0.810          0.306    (  0.729)         0.504
25   2.08     3.10      0.837          0.306    (  0.753)         0.531
26   2.17     4.20      1.134          0.306    (  1.021)         0.828
27   2.25     5.00      1.350          0.306    (  1.215)         1.044
28   2.33     3.50      0.945          0.306    (  0.850)         0.639
29   2.42     6.80      1.836          0.306    (  1.652)         1.530
30   2.50     7.30      1.971          0.306    (  1.774)         1.665
31   2.58     8.20      2.214          0.306    (  1.993)         1.908
32   2.67     5.90      1.593          0.306    (  1.434)         1.287
33   2.75     2.00      0.540          0.306    (  0.486)         0.234
34   2.83     1.80      0.486          0.306    (  0.437)         0.180
35   2.92     1.80      0.486          0.306    (  0.437)         0.180
36   3.00     0.60      0.162       (  0.306)       0.146         0.016
          (Loss Rate Not Used)
   Sum =     100.0                                    Sum =    16.2
    Flood volume = Effective rainfall      1.35(In)
     times area       0.5(Ac.)/[(In)/(Ft.)] =       0.1(Ac.Ft)
    Total soil loss =      0.90(In)
    Total soil loss =     0.041(Ac.Ft)
    Total rainfall =      2.25(In)
    Flood volume =        2645.2 Cubic Feet
    Total soil loss =        1765.3 Cubic Feet
    ----------------------------------------------------------------------
     Peak flow rate of this hydrograph =      1.039(CFS)
    ----------------------------------------------------------------------
    ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        3 - H O U R    S T O R M
                    R u n o f f      H y d r o g r a p h
```

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0002	0.02	Q				
0+10	0.0003	0.02	Q				
0+15	0.0005	0.02	Q				
0+20	0.0008	0.05	Q				
0+25	0.0012	0.05	Q				
0+30	0.0019	0.10	QV				
0+35	0.0022	0.05	QV				
0+40	0.0029	0.10	QV				
0+45	0.0036	0.10	Q V				
0+50	0.0040	0.05	Q V				
0+55	0.0044	0.07	Q V				

U n i t H y d r o g r a p h A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 8- 100 YR, 6-hr

Drainage Area = 0.54(Ac.) = 0.001 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 0.54(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 70.00(Ft.)
Length along longest watercourse measured to centroid = 35.00(Ft.)
Length along longest watercourse = 0.013 Mi.
Length along longest watercourse measured to centroid = 0.007 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 75.4286 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.005 Hr.
Lag time =     0.27 Min.
25% of lag time =     0.07 Min.
40% of lag time =     0.11 Min.
Unit time =     5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.54             1.20                  0.65

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.54             2.99                  1.61

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.200(In)
Area Averaged 100-Year Rainfall =    2.990(In)

Point rain (area averaged) =    2.990(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.990(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     0.540           69.00          0.200
 Total Area Entered =      0.54(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306       1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	1830.487	100.000	0.544
		Sum = 100.000	Sum= 0.544

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.179	(0.306)	0.161	0.018
2	0.17	0.60	0.215	(0.306)	0.194	0.022
3	0.25	0.60	0.215	(0.306)	0.194	0.022
4	0.33	0.60	0.215	(0.306)	0.194	0.022
5	0.42	0.60	0.215	(0.306)	0.194	0.022
6	0.50	0.70	0.251	(0.306)	0.226	0.025
7	0.58	0.70	0.251	(0.306)	0.226	0.025
8	0.67	0.70	0.251	(0.306)	0.226	0.025
9	0.75	0.70	0.251	(0.306)	0.226	0.025
10	0.83	0.70	0.251	(0.306)	0.226	0.025
11	0.92	0.70	0.251	(0.306)	0.226	0.025
12	1.00	0.80	0.287	(0.306)	0.258	0.029
13	1.08	0.80	0.287	(0.306)	0.258	0.029

14	1.17	0.80	0.287	(0.306)	0.258	0.029
15	1.25	0.80	0.287	(0.306)	0.258	0.029
16	1.33	0.80	0.287	(0.306)	0.258	0.029
17	1.42	0.80	0.287	(0.306)	0.258	0.029
18	1.50	0.80	0.287	(0.306)	0.258	0.029
19	1.58	0.80	0.287	(0.306)	0.258	0.029
20	1.67	0.80	0.287	(0.306)	0.258	0.029
21	1.75	0.80	0.287	(0.306)	0.258	0.029
22	1.83	0.80	0.287	(0.306)	0.258	0.029
23	1.92	0.80	0.287	(0.306)	0.258	0.029
24	2.00	0.90	0.323	(0.306)	0.291	0.032
25	2.08	0.80	0.287	(0.306)	0.258	0.029
26	2.17	0.90	0.323	(0.306)	0.291	0.032
27	2.25	0.90	0.323	(0.306)	0.291	0.032
28	2.33	0.90	0.323	(0.306)	0.291	0.032
29	2.42	0.90	0.323	(0.306)	0.291	0.032
30	2.50	0.90	0.323	(0.306)	0.291	0.032
31	2.58	0.90	0.323	(0.306)	0.291	0.032
32	2.67	0.90	0.323	(0.306)	0.291	0.032
33	2.75	1.00	0.359	0.306	(0.323)	0.053
34	2.83	1.00	0.359	0.306	(0.323)	0.053
35	2.92	1.00	0.359	0.306	(0.323)	0.053
36	3.00	1.00	0.359	0.306	(0.323)	0.053
37	3.08	1.00	0.359	0.306	(0.323)	0.053
38	3.17	1.10	0.395	0.306	(0.355)	0.089
39	3.25	1.10	0.395	0.306	(0.355)	0.089
40	3.33	1.10	0.395	0.306	(0.355)	0.089
41	3.42	1.20	0.431	0.306	(0.388)	0.125
42	3.50	1.30	0.466	0.306	(0.420)	0.161
43	3.58	1.40	0.502	0.306	(0.452)	0.197
44	3.67	1.40	0.502	0.306	(0.452)	0.197
45	3.75	1.50	0.538	0.306	(0.484)	0.233
46	3.83	1.50	0.538	0.306	(0.484)	0.233
47	3.92	1.60	0.574	0.306	(0.517)	0.268
48	4.00	1.60	0.574	0.306	(0.517)	0.268
49	4.08	1.70	0.610	0.306	(0.549)	0.304
50	4.17	1.80	0.646	0.306	(0.581)	0.340
51	4.25	1.90	0.682	0.306	(0.614)	0.376

```
52   4.33     2.00      0.718          0.306    (  0.646)        0.412
53   4.42     2.10      0.753          0.306    (  0.678)        0.448
54   4.50     2.10      0.753          0.306    (  0.678)        0.448
55   4.58     2.20      0.789          0.306    (  0.710)        0.484
56   4.67     2.30      0.825          0.306    (  0.743)        0.520
57   4.75     2.40      0.861          0.306    (  0.775)        0.555
58   4.83     2.40      0.861          0.306    (  0.775)        0.555
59   4.92     2.50      0.897          0.306    (  0.807)        0.591
60   5.00     2.60      0.933          0.306    (  0.840)        0.627
61   5.08     3.10      1.112          0.306    (  1.001)        0.807
62   5.17     3.60      1.292          0.306    (  1.163)        0.986
63   5.25     3.90      1.399          0.306    (  1.259)        1.094
64   5.33     4.20      1.507          0.306    (  1.356)        1.201
65   5.42     4.70      1.686          0.306    (  1.518)        1.381
66   5.50     5.60      2.009          0.306    (  1.808)        1.704
67   5.58     1.90      0.682          0.306    (  0.614)        0.376
68   5.67     0.90      0.323       (  0.306)       0.291        0.032
69   5.75     0.60      0.215       (  0.306)       0.194        0.022
70   5.83     0.50      0.179       (  0.306)       0.161        0.018
71   5.92     0.30      0.108       (  0.306)       0.097        0.011
72   6.00     0.20      0.072       (  0.306)       0.065        0.007
          (Loss Rate Not Used)
   Sum =     100.0                                    Sum =    16.4
    Flood volume = Effective rainfall      1.37(In)
     times area       0.5(Ac.)/[(In)/(Ft.)] =       0.1(Ac.Ft)
    Total soil loss =      1.62(In)
    Total soil loss =     0.073(Ac.Ft)
    Total rainfall =      2.99(In)
    Flood volume =        2678.5 Cubic Feet
    Total soil loss =        3182.5 Cubic Feet
    ---------------------------------------------------------------------
     Peak flow rate of this hydrograph =      0.928(CFS)
    ---------------------------------------------------------------------
    +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        6 - H O U R    S T O R M
                    R u n o f f      H y d r o g r a p h
    ---------------------------------------------------------------------
                Hydrograph in   5   Minute intervals ((CFS))
```

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0001	0.01	Q				
0+10	0.0001	0.01	Q				
0+15	0.0002	0.01	Q				
0+20	0.0003	0.01	Q				
0+25	0.0004	0.01	Q				
0+30	0.0005	0.01	Q				
0+35	0.0006	0.01	Q				
0+40	0.0007	0.01	Q				
0+45	0.0008	0.01	Q				
0+50	0.0009	0.01	Q				
0+55	0.0010	0.01	Q				
1+ 0	0.0011	0.02	Q				
1+ 5	0.0012	0.02	Q				
1+10	0.0013	0.02	Q				
1+15	0.0014	0.02	Q				
1+20	0.0015	0.02	Q				
1+25	0.0016	0.02	QV				
1+30	0.0017	0.02	QV				
1+35	0.0018	0.02	QV				
1+40	0.0019	0.02	QV				
1+45	0.0020	0.02	QV				
1+50	0.0021	0.02	QV				
1+55	0.0022	0.02	QV				
2+ 0	0.0024	0.02	QV				
2+ 5	0.0025	0.02	QV				
2+10	0.0026	0.02	QV				
2+15	0.0027	0.02	QV				
2+20	0.0028	0.02	QV				
2+25	0.0030	0.02	QV				
2+30	0.0031	0.02	Q V				
2+35	0.0032						

U n i t H y d r o g r a p h A n a l y s i s

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Study date 01/03/23 File: VOLT824100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 8- 100 YR, 24-hr

Drainage Area = 0.54(Ac.) = 0.001 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 0.54(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 70.00(Ft.)
Length along longest watercourse measured to centroid = 35.00(Ft.)
Length along longest watercourse = 0.013 Mi.
Length along longest watercourse measured to centroid = 0.007 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 75.4286 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.005 Hr.
Lag time =     0.27 Min.
25% of lag time =     0.07 Min.
40% of lag time =     0.11 Min.
Unit time =     5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.54             2.06                  1.11

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.54             5.39                  2.91

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    2.060(In)
Area Averaged 100-Year Rainfall =    5.390(In)

Point rain (area averaged) =    5.390(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    5.390(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     0.540           69.00         0.200
 Total Area Entered =      0.54(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306       1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	1830.487	100.000	0.544
		Sum = 100.000	Sum= 0.544

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.043	(0.542)	0.039	0.004
2	0.17	0.07	0.043	(0.540)	0.039	0.004
3	0.25	0.07	0.043	(0.538)	0.039	0.004
4	0.33	0.10	0.065	(0.536)	0.058	0.006
5	0.42	0.10	0.065	(0.534)	0.058	0.006
6	0.50	0.10	0.065	(0.531)	0.058	0.006
7	0.58	0.10	0.065	(0.529)	0.058	0.006
8	0.67	0.10	0.065	(0.527)	0.058	0.006
9	0.75	0.10	0.065	(0.525)	0.058	0.006
10	0.83	0.13	0.086	(0.523)	0.078	0.009
11	0.92	0.13	0.086	(0.521)	0.078	0.009
12	1.00	0.13	0.086	(0.519)	0.078	0.009
13	1.08	0.10	0.065	(0.517)	0.058	0.006

14	1.17	0.10	0.065	(0.515)	0.058	0.006
15	1.25	0.10	0.065	(0.513)	0.058	0.006
16	1.33	0.10	0.065	(0.511)	0.058	0.006
17	1.42	0.10	0.065	(0.509)	0.058	0.006
18	1.50	0.10	0.065	(0.507)	0.058	0.006
19	1.58	0.10	0.065	(0.505)	0.058	0.006
20	1.67	0.10	0.065	(0.503)	0.058	0.006
21	1.75	0.10	0.065	(0.501)	0.058	0.006
22	1.83	0.13	0.086	(0.499)	0.078	0.009
23	1.92	0.13	0.086	(0.497)	0.078	0.009
24	2.00	0.13	0.086	(0.495)	0.078	0.009
25	2.08	0.13	0.086	(0.493)	0.078	0.009
26	2.17	0.13	0.086	(0.491)	0.078	0.009
27	2.25	0.13	0.086	(0.489)	0.078	0.009
28	2.33	0.13	0.086	(0.487)	0.078	0.009
29	2.42	0.13	0.086	(0.485)	0.078	0.009
30	2.50	0.13	0.086	(0.483)	0.078	0.009
31	2.58	0.17	0.108	(0.481)	0.097	0.011
32	2.67	0.17	0.108	(0.479)	0.097	0.011
33	2.75	0.17	0.108	(0.477)	0.097	0.011
34	2.83	0.17	0.108	(0.475)	0.097	0.011
35	2.92	0.17	0.108	(0.473)	0.097	0.011
36	3.00	0.17	0.108	(0.471)	0.097	0.011
37	3.08	0.17	0.108	(0.469)	0.097	0.011
38	3.17	0.17	0.108	(0.467)	0.097	0.011
39	3.25	0.17	0.108	(0.465)	0.097	0.011
40	3.33	0.17	0.108	(0.463)	0.097	0.011
41	3.42	0.17	0.108	(0.461)	0.097	0.011
42	3.50	0.17	0.108	(0.459)	0.097	0.011
43	3.58	0.17	0.108	(0.457)	0.097	0.011
44	3.67	0.17	0.108	(0.456)	0.097	0.011
45	3.75	0.17	0.108	(0.454)	0.097	0.011
46	3.83	0.20	0.129	(0.452)	0.116	0.013
47	3.92	0.20	0.129	(0.450)	0.116	0.013
48	4.00	0.20	0.129	(0.448)	0.116	0.013
49	4.08	0.20	0.129	(0.446)	0.116	0.013
50	4.17	0.20	0.129	(0.444)	0.116	0.013
51	4.25	0.20	0.129	(0.442)	0.116	0.013

52	4.33	0.23	0.151	(0.440)	0.136	0.015
53	4.42	0.23	0.151	(0.438)	0.136	0.015
54	4.50	0.23	0.151	(0.437)	0.136	0.015
55	4.58	0.23	0.151	(0.435)	0.136	0.015
56	4.67	0.23	0.151	(0.433)	0.136	0.015
57	4.75	0.23	0.151	(0.431)	0.136	0.015
58	4.83	0.27	0.172	(0.429)	0.155	0.017
59	4.92	0.27	0.172	(0.427)	0.155	0.017
60	5.00	0.27	0.172	(0.425)	0.155	0.017
61	5.08	0.20	0.129	(0.424)	0.116	0.013
62	5.17	0.20	0.129	(0.422)	0.116	0.013
63	5.25	0.20	0.129	(0.420)	0.116	0.013
64	5.33	0.23	0.151	(0.418)	0.136	0.015
65	5.42	0.23	0.151	(0.416)	0.136	0.015
66	5.50	0.23	0.151	(0.414)	0.136	0.015
67	5.58	0.27	0.172	(0.413)	0.155	0.017
68	5.67	0.27	0.172	(0.411)	0.155	0.017
69	5.75	0.27	0.172	(0.409)	0.155	0.017
70	5.83	0.27	0.172	(0.407)	0.155	0.017
71	5.92	0.27	0.172	(0.405)	0.155	0.017
72	6.00	0.27	0.172	(0.404)	0.155	0.017
73	6.08	0.30	0.194	(0.402)	0.175	0.019
74	6.17	0.30	0.194	(0.400)	0.175	0.019
75	6.25	0.30	0.194	(0.398)	0.175	0.019
76	6.33	0.30	0.194	(0.396)	0.175	0.019
77	6.42	0.30	0.194	(0.395)	0.175	0.019
78	6.50	0.30	0.194	(0.393)	0.175	0.019
79	6.58	0.33	0.216	(0.391)	0.194	0.022
80	6.67	0.33	0.216	(0.389)	0.194	0.022
81	6.75	0.33	0.216	(0.388)	0.194	0.022
82	6.83	0.33	0.216	(0.386)	0.194	0.022
83	6.92	0.33	0.216	(0.384)	0.194	0.022
84	7.00	0.33	0.216	(0.382)	0.194	0.022
85	7.08	0.33	0.216	(0.381)	0.194	0.022
86	7.17	0.33	0.216	(0.379)	0.194	0.022
87	7.25	0.33	0.216	(0.377)	0.194	0.022
88	7.33	0.37	0.237	(0.375)	0.213	0.024
89	7.42	0.37	0.237	(0.374)	0.213	0.024

90	7.50	0.37	0.237	(0.372)	0.213	0.024
91	7.58	0.40	0.259	(0.370)	0.233	0.026
92	7.67	0.40	0.259	(0.369)	0.233	0.026
93	7.75	0.40	0.259	(0.367)	0.233	0.026
94	7.83	0.43	0.280	(0.365)	0.252	0.028
95	7.92	0.43	0.280	(0.363)	0.252	0.028
96	8.00	0.43	0.280	(0.362)	0.252	0.028
97	8.08	0.50	0.323	(0.360)	0.291	0.032
98	8.17	0.50	0.323	(0.358)	0.291	0.032
99	8.25	0.50	0.323	(0.357)	0.291	0.032
100	8.33	0.50	0.323	(0.355)	0.291	0.032
101	8.42	0.50	0.323	(0.353)	0.291	0.032
102	8.50	0.50	0.323	(0.352)	0.291	0.032
103	8.58	0.53	0.345	(0.350)	0.310	0.034
104	8.67	0.53	0.345	(0.348)	0.310	0.034
105	8.75	0.53	0.345	(0.347)	0.310	0.034
106	8.83	0.57	0.367	(0.345)	0.330	0.037
107	8.92	0.57	0.367	(0.344)	0.330	0.037
108	9.00	0.57	0.367	(0.342)	0.330	0.037
109	9.08	0.63	0.410	0.340	(0.369)	0.069
110	9.17	0.63	0.410	0.339	(0.369)	0.071
111	9.25	0.63	0.410	0.337	(0.369)	0.073
112	9.33	0.67	0.431	0.335	(0.388)	0.096
113	9.42	0.67	0.431	0.334	(0.388)	0.097
114	9.50	0.67	0.431	0.332	(0.388)	0.099
115	9.58	0.70	0.453	0.331	(0.407)	0.122
116	9.67	0.70	0.453	0.329	(0.407)	0.124
117	9.75	0.70	0.453	0.328	(0.407)	0.125
118	9.83	0.73	0.474	0.326	(0.427)	0.148
119	9.92	0.73	0.474	0.324	(0.427)	0.150
120	10.00	0.73	0.474	0.323	(0.427)	0.152
121	10.08	0.50	0.323	(0.321)	0.291	0.032
122	10.17	0.50	0.323	(0.320)	0.291	0.032
123	10.25	0.50	0.323	(0.318)	0.291	0.032
124	10.33	0.50	0.323	(0.317)	0.291	0.032
125	10.42	0.50	0.323	(0.315)	0.291	0.032
126	10.50	0.50	0.323	(0.314)	0.291	0.032
127	10.58	0.67	0.431	0.312	(0.388)	0.119

128	10.67	0.67	0.431	0.310	(0.388)	0.121
129	10.75	0.67	0.431	0.309	(0.388)	0.122
130	10.83	0.67	0.431	0.307	(0.388)	0.124
131	10.92	0.67	0.431	0.306	(0.388)	0.125
132	11.00	0.67	0.431	0.304	(0.388)	0.127
133	11.08	0.63	0.410	0.303	(0.369)	0.107
134	11.17	0.63	0.410	0.301	(0.369)	0.108
135	11.25	0.63	0.410	0.300	(0.369)	0.110
136	11.33	0.63	0.410	0.298	(0.369)	0.111
137	11.42	0.63	0.410	0.297	(0.369)	0.113
138	11.50	0.63	0.410	0.296	(0.369)	0.114
139	11.58	0.57	0.367	0.294	(0.330)	0.072
140	11.67	0.57	0.367	0.293	(0.330)	0.074
141	11.75	0.57	0.367	0.291	(0.330)	0.075
142	11.83	0.60	0.388	0.290	(0.349)	0.098
143	11.92	0.60	0.388	0.288	(0.349)	0.100
144	12.00	0.60	0.388	0.287	(0.349)	0.101
145	12.08	0.83	0.539	0.285	(0.485)	0.254
146	12.17	0.83	0.539	0.284	(0.485)	0.255
147	12.25	0.83	0.539	0.283	(0.485)	0.256
148	12.33	0.87	0.561	0.281	(0.505)	0.279
149	12.42	0.87	0.561	0.280	(0.505)	0.281
150	12.50	0.87	0.561	0.278	(0.505)	0.282
151	12.58	0.93	0.604	0.277	(0.543)	0.327
152	12.67	0.93	0.604	0.275	(0.543)	0.328
153	12.75	0.93	0.604	0.274	(0.543)	0.330
154	12.83	0.97	0.625	0.273	(0.563)	0.353
155	12.92	0.97	0.625	0.271	(0.563)	0.354
156	13.00	0.97	0.625	0.270	(0.563)	0.355
157	13.08	1.13	0.733	0.269	(0.660)	0.464
158	13.17	1.13	0.733	0.267	(0.660)	0.466
159	13.25	1.13	0.733	0.266	(0.660)	0.467
160	13.33	1.13	0.733	0.265	(0.660)	0.469
161	13.42	1.13	0.733	0.263	(0.660)	0.470
162	13.50	1.13	0.733	0.262	(0.660)	0.471
163	13.58	0.77	0.496	0.261	(0.446)	0.235
164	13.67	0.77	0.496	0.259	(0.446)	0.237
165	13.75	0.77	0.496	0.258	(0.446)	0.238

166	13.83	0.77	0.496	0.257	(0.446)	0.239
167	13.92	0.77	0.496	0.255	(0.446)	0.241
168	14.00	0.77	0.496	0.254	(0.446)	0.242
169	14.08	0.90	0.582	0.253	(0.524)	0.329
170	14.17	0.90	0.582	0.251	(0.524)	0.331
171	14.25	0.90	0.582	0.250	(0.524)	0.332
172	14.33	0.87	0.561	0.249	(0.505)	0.312
173	14.42	0.87	0.561	0.248	(0.505)	0.313
174	14.50	0.87	0.561	0.246	(0.505)	0.314
175	14.58	0.87	0.561	0.245	(0.505)	0.316
176	14.67	0.87	0.561	0.244	(0.505)	0.317
177	14.75	0.87	0.561	0.242	(0.505)	0.318
178	14.83	0.83	0.539	0.241	(0.485)	0.298
179	14.92	0.83	0.539	0.240	(0.485)	0.299
180	15.00	0.83	0.539	0.239	(0.485)	0.300
181	15.08	0.80	0.517	0.238	(0.466)	0.280
182	15.17	0.80	0.517	0.236	(0.466)	0.281
183	15.25	0.80	0.517	0.235	(0.466)	0.282
184	15.33	0.77	0.496	0.234	(0.446)	0.262
185	15.42	0.77	0.496	0.233	(0.446)	0.263
186	15.50	0.77	0.496	0.232	(0.446)	0.264
187	15.58	0.63	0.410	0.230	(0.369)	0.179
188	15.67	0.63	0.410	0.229	(0.369)	0.180
189	15.75	0.63	0.410	0.228	(0.369)	0.182
190	15.83	0.63	0.410	0.227	(0.369)	0.183
191	15.92	0.63	0.410	0.226	(0.369)	0.184
192	16.00	0.63	0.410	0.224	(0.369)	0.185
193	16.08	0.13	0.086	(0.223)	0.078	0.009
194	16.17	0.13	0.086	(0.222)	0.078	0.009
195	16.25	0.13	0.086	(0.221)	0.078	0.009
196	16.33	0.13	0.086	(0.220)	0.078	0.009
197	16.42	0.13	0.086	(0.219)	0.078	0.009
198	16.50	0.13	0.086	(0.218)	0.078	0.009
199	16.58	0.10	0.065	(0.217)	0.058	0.006
200	16.67	0.10	0.065	(0.215)	0.058	0.006
201	16.75	0.10	0.065	(0.214)	0.058	0.006
202	16.83	0.10	0.065	(0.213)	0.058	0.006
203	16.92	0.10	0.065	(0.212)	0.058	0.006

204	17.00	0.10	0.065	(0.211)	0.058	0.006
205	17.08	0.17	0.108	(0.210)	0.097	0.011
206	17.17	0.17	0.108	(0.209)	0.097	0.011
207	17.25	0.17	0.108	(0.208)	0.097	0.011
208	17.33	0.17	0.108	(0.207)	0.097	0.011
209	17.42	0.17	0.108	(0.206)	0.097	0.011
210	17.50	0.17	0.108	(0.205)	0.097	0.011
211	17.58	0.17	0.108	(0.204)	0.097	0.011
212	17.67	0.17	0.108	(0.203)	0.097	0.011
213	17.75	0.17	0.108	(0.202)	0.097	0.011
214	17.83	0.13	0.086	(0.201)	0.078	0.009
215	17.92	0.13	0.086	(0.200)	0.078	0.009
216	18.00	0.13	0.086	(0.199)	0.078	0.009
217	18.08	0.13	0.086	(0.198)	0.078	0.009
218	18.17	0.13	0.086	(0.197)	0.078	0.009
219	18.25	0.13	0.086	(0.196)	0.078	0.009
220	18.33	0.13	0.086	(0.195)	0.078	0.009
221	18.42	0.13	0.086	(0.194)	0.078	0.009
222	18.50	0.13	0.086	(0.193)	0.078	0.009
223	18.58	0.10	0.065	(0.192)	0.058	0.006
224	18.67	0.10	0.065	(0.191)	0.058	0.006
225	18.75	0.10	0.065	(0.190)	0.058	0.006
226	18.83	0.07	0.043	(0.189)	0.039	0.004
227	18.92	0.07	0.043	(0.188)	0.039	0.004
228	19.00	0.07	0.043	(0.188)	0.039	0.004
229	19.08	0.10	0.065	(0.187)	0.058	0.006
230	19.17	0.10	0.065	(0.186)	0.058	0.006
231	19.25	0.10	0.065	(0.185)	0.058	0.006
232	19.33	0.13	0.086	(0.184)	0.078	0.009
233	19.42	0.13	0.086	(0.183)	0.078	0.009
234	19.50	0.13	0.086	(0.182)	0.078	0.009
235	19.58	0.10	0.065	(0.182)	0.058	0.006
236	19.67	0.10	0.065	(0.181)	0.058	0.006
237	19.75	0.10	0.065	(0.180)	0.058	0.006
238	19.83	0.07	0.043	(0.179)	0.039	0.004
239	19.92	0.07	0.043	(0.178)	0.039	0.004
240	20.00	0.07	0.043	(0.178)	0.039	0.004
241	20.08	0.10	0.065	(0.177)	0.058	0.006

242	20.17	0.10	0.065	(0.176)	0.058	0.006
243	20.25	0.10	0.065	(0.175)	0.058	0.006
244	20.33	0.10	0.065	(0.174)	0.058	0.006
245	20.42	0.10	0.065	(0.174)	0.058	0.006
246	20.50	0.10	0.065	(0.173)	0.058	0.006
247	20.58	0.10	0.065	(0.172)	0.058	0.006
248	20.67	0.10	0.065	(0.171)	0.058	0.006
249	20.75	0.10	0.065	(0.171)	0.058	0.006
250	20.83	0.07	0.043	(0.170)	0.039	0.004
251	20.92	0.07	0.043	(0.169)	0.039	0.004
252	21.00	0.07	0.043	(0.169)	0.039	0.004
253	21.08	0.10	0.065	(0.168)	0.058	0.006
254	21.17	0.10	0.065	(0.167)	0.058	0.006
255	21.25	0.10	0.065	(0.167)	0.058	0.006
256	21.33	0.07	0.043	(0.166)	0.039	0.004
257	21.42	0.07	0.043	(0.165)	0.039	0.004
258	21.50	0.07	0.043	(0.165)	0.039	0.004
259	21.58	0.10	0.065	(0.164)	0.058	0.006
260	21.67	0.10	0.065	(0.164)	0.058	0.006
261	21.75	0.10	0.065	(0.163)	0.058	0.006
262	21.83	0.07	0.043	(0.163)	0.039	0.004
263	21.92	0.07	0.043	(0.162)	0.039	0.004
264	22.00	0.07	0.043	(0.161)	0.039	0.004
265	22.08	0.10	0.065	(0.161)	0.058	0.006
266	22.17	0.10	0.065	(0.160)	0.058	0.006
267	22.25	0.10	0.065	(0.160)	0.058	0.006
268	22.33	0.07	0.043	(0.159)	0.039	0.004
269	22.42	0.07	0.043	(0.159)	0.039	0.004
270	22.50	0.07	0.043	(0.158)	0.039	0.004
271	22.58	0.07	0.043	(0.158)	0.039	0.004
272	22.67	0.07	0.043	(0.157)	0.039	0.004
273	22.75	0.07	0.043	(0.157)	0.039	0.004
274	22.83	0.07	0.043	(0.157)	0.039	0.004
275	22.92	0.07	0.043	(0.156)	0.039	0.004
276	23.00	0.07	0.043	(0.156)	0.039	0.004
277	23.08	0.07	0.043	(0.155)	0.039	0.004
278	23.17	0.07	0.043	(0.155)	0.039	0.004
279	23.25	0.07	0.043	(0.155)	0.039	0.004

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280  23.33     0.07      0.043       (  0.155)       0.039        0.004
281  23.42     0.07      0.043       (  0.154)       0.039        0.004
282  23.50     0.07      0.043       (  0.154)       0.039        0.004
283  23.58     0.07      0.043       (  0.154)       0.039        0.004
284  23.67     0.07      0.043       (  0.153)       0.039        0.004
285  23.75     0.07      0.043       (  0.153)       0.039        0.004
286  23.83     0.07      0.043       (  0.153)       0.039        0.004
287  23.92     0.07      0.043       (  0.153)       0.039        0.004
288  24.00     0.07      0.043       (  0.153)       0.039        0.004
           (Loss Rate Not Used)
    Sum =     100.0                                  Sum =    20.2
     Flood volume = Effective rainfall      1.68(In)
      times area       0.5(Ac.)/[(In)/(Ft.)] =       0.1(Ac.Ft)
     Total soil loss =      3.71(In)
     Total soil loss =     0.167(Ac.Ft)
     Total rainfall =      5.39(In)
     Flood volume =        3298.8 Cubic Feet
     Total soil loss =        7266.7 Cubic Feet
     ---------------------------------------------------------------------
      Peak flow rate of this hydrograph =      0.257(CFS)
     ---------------------------------------------------------------------
     +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        24 - H O U R    S T O R M
                   R u n o f f      H y d r o g r a p h
     ---------------------------------------------------------------------
                 Hydrograph in   5   Minute intervals ((CFS))

     ---------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
 ---------------------------------------------------------------------
   0+ 5       0.0000      0.00  Q         |         |         |         |
   0+10       0.0000      0.00  Q         |         |         |         |
   0+15       0.0000      0.00  Q         |         |         |         |
   0+20       0.0001      0.00  Q         |         |         |         |
   0+25       0.0001      0.00  Q         |         |         |         |
   0+30       0.0001      0.00  Q         |         |         |         |
   0+35       0.0001      0.00  Q         |         |         |         |
   0+40       0.0002      0.00  Q         |         |         |         |
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0+45	0.0002	0.00	Q	|	|	|	|
0+50	0.0002	0.00	Q	|	|	|	|
0+55	0.0003	0.00	Q	|	|	|	|
1+ 0	0.0003	0.00	Q	|	|	|	|
1+ 5	0.0003	0.00	Q	|	|	|	|
1+10	0.0003	0.00	Q	|	|	|	|
1+15	0.0004	0.00	Q	|	|	|	|
1+20	0.0004	0.00	Q	|	|	|	|
1+25	0.0004	0.00	Q	|	|	|	|
1+30	0.0004	0.00	Q	|	|	|	|
1+35	0.0005	0.00	Q	|	|	|	|
1+40	0.0005	0.00	Q	|	|	|	|
1+45	0.0005	0.00	Q	|	|	|	|
1+50	0.0005	0.00	Q	|	|	|	|
1+55	0.0006	0.00	Q	|	|	|	|
2+ 0	0.0006	0.00	Q	|	|	|	|
2+ 5	0.0006	0.00	Q	|	|	|	|
2+10	0.0007	0.00	Q	|	|	|	|
2+15	0.0007	0.00	Q	|	|	|	|
2+20	0.0007	0.00	Q	|	|	|	|
2+25	0.0008	0.00	Q	|	|	|	|
2+30	0.0008	0.00	Q	|	|	|	|
2+35	0.0008	0.01	Q	|	|	|	|
2+40	0.0009	0.01	Q	|	|	|	|
2+45	0.0009	0.01	Q	|	|	|	|
2+50	0.0010	0.01	Q	|	|	|	|
2+55	0.0010	0.01	Q	|	|	|	|
3+ 0	0.0010	0.01	Q	|	|	|	|
3+ 5	0.0011	0.01	Q	|	|	|	|
3+10	0.0011	0.01	Q	|	|	|	|
3+15	0.0012	0.01	Q	|	|	|	|
3+20	0.0012	0.01	Q	|	|	|	|
3+25	0.0012	0.01	Q	|	|	|	|
3+30	0.0013	0.01	Q	|	|	|	|
3+35	0.0013	0.01	Q	|	|	|	|
3+40	0.0014	0.01	Q	|	|	|	|
3+45	0.0014	0.01	Q	|	|	|	|
3+50	0.0015	0.01	Q	|	|	|	|

3+55	0.0015	0.01	Q				
4+ 0	0.0016	0.01	Q				
4+ 5	0.0016	0.01	Q				
4+10	0.0016	0.01	Q				
4+15	0.0017	0.01	Q				
4+20	0.0018	0.01	Q				
4+25	0.0018	0.01	Q				
4+30	0.0019	0.01	Q				
4+35	0.0019	0.01	QV				
4+40	0.0020	0.01	QV				
4+45	0.0020	0.01	QV				
4+50	0.0021	0.01	QV				
4+55	0.0022	0.01	QV				
5+ 0	0.0022	0.01	QV				
5+ 5	0.0023	0.01	QV				
5+10	0.0023	0.01	QV				
5+15	0.0024	0.01	QV				
5+20	0.0024	0.01	QV				
5+25	0.0025	0.01	QV				
5+30	0.0025	0.01	QV				
5+35	0.0026	0.01	QV				
5+40	0.0027	0.01	QV				
5+45	0.0027	0.01	QV				
5+50	0.0028	0.01	QV				
5+55	0.0029	0.01	QV				
6+ 0	0.0029	0.01	QV				
6+ 5	0.0030	0.01	QV				
6+10	0.0031	0.01	QV				
6+15	0.0032	0.01	QV				
6+20	0.0032	0.01	QV				
6+25	0.0033	0.01	QV				
6+30	0.0034	0.01	QV				
6+35	0.0035	0.01	QV				
6+40	0.0035	0.01	QV				
6+45	0.0036	0.01	QV				
6+50	0.0037	0.01	QV				
6+55	0.0038	0.01	QV				
7+ 0	0.0039	0.01	Q V				

7+ 5	0.0039	0.01	Q V	|	|	|	|
7+10	0.0040	0.01	Q V	|	|	|	|
7+15	0.0041	0.01	Q V	|	|	|	|
7+20	0.0042	0.01	Q V	|	|	|	|
7+25	0.0043	0.01	Q V	|	|	|	|
7+30	0.0044	0.01	Q V	|	|	|	|
7+35	0.0045	0.01	Q V	|	|	|	|
7+40	0.0046	0.01	Q V	|	|	|	|
7+45	0.0047	0.01	Q V	|	|	|	|
7+50	0.0048	0.02	Q V	|	|	|	|
7+55	0.0049	0.02	Q V	|	|	|	|
8+ 0	0.0050	0.02	Q V	|	|	|	|
8+ 5	0.0051	0.02	Q V	|	|	|	|
8+10	0.0052	0.02	Q V	|	|	|	|
8+15	0.0053	0.02	Q V	|	|	|	|
8+20	0.0055	0.02	Q V	|	|	|	|
8+25	0.0056	0.02	Q V	|	|	|	|
8+30	0.0057	0.02	Q V	|	|	|	|
8+35	0.0058	0.02	Q V	|	|	|	|
8+40	0.0060	0.02	Q V	|	|	|	|
8+45	0.0061	0.02	Q V	|	|	|	|
8+50	0.0062	0.02	Q V	|	|	|	|
8+55	0.0064	0.02	Q V	|	|	|	|
9+ 0	0.0065	0.02	Q V	|	|	|	|
9+ 5	0.0068	0.04	Q V	|	|	|	|
9+10	0.0070	0.04	Q V	|	|	|	|
9+15	0.0073	0.04	Q V	|	|	|	|
9+20	0.0077	0.05	Q V	|	|	|	|
9+25	0.0080	0.05	Q V	|	|	|	|
9+30	0.0084	0.05	Q V	|	|	|	|
9+35	0.0089	0.07	Q V	|	|	|	|
9+40	0.0093	0.07	Q V	|	|	|	|
9+45	0.0098	0.07	Q V	|	|	|	|
9+50	0.0103	0.08	Q V	|	|	|	|
9+55	0.0109	0.08	Q V	|	|	|	|
10+ 0	0.0115	0.08	Q V	|	|	|	|
10+ 5	0.0116	0.02	Q V	|	|	|	|
10+10	0.0117	0.02	Q V	|	|	|	|

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10+15       0.0118      0.02  Q     V   |          |          |          |
10+20       0.0120      0.02  Q     V   |          |          |          |
10+25       0.0121      0.02  Q     V   |          |          |          |
10+30       0.0122      0.02  Q     V   |          |          |          |
10+35       0.0126      0.06  Q     V   |          |          |          |
10+40       0.0131      0.07  Q     V   |          |          |          |
10+45       0.0136      0.07  Q      V  |          |          |          |
10+50       0.0140      0.07  Q      V  |          |          |          |
10+55       0.0145      0.07  Q      V  |          |          |          |
11+ 0       0.0150      0.07  Q      V  |          |          |          |
11+ 5       0.0154      0.06  Q       V |          |          |          |
11+10       0.0158      0.06  Q       V |          |          |          |
11+15       0.0162      0.06  Q       V |          |          |          |
11+20       0.0166      0.06  Q       V |          |          |          |
11+25       0.0170      0.06  Q       V |          |          |          |
11+30       0.0175      0.06  Q        V|          |          |          |
11+35       0.0177      0.04  Q        V|          |          |          |
11+40       0.0180      0.04  Q        V|          |          |          |
11+45       0.0183      0.04  Q        V|          |          |          |
11+50       0.0187      0.05  Q        V|          |          |          |
11+55       0.0190      0.05  Q         V          |          |          |
12+ 0       0.0194      0.06  Q         V          |          |          |
12+ 5       0.0204      0.14  Q         V          |          |          |
12+10       0.0213      0.14  Q         |V         |          |          |
12+15       0.0223      0.14  Q         |V         |          |          |
12+20       0.0233      0.15  Q         | V        |          |          |
12+25       0.0244      0.15  Q         | V        |          |          |
12+30       0.0254      0.15  Q         |  V       |          |          |
12+35       0.0267      0.18  Q         |   V      |          |          |
12+40       0.0279      0.18  Q         |   V      |          |          |
12+45       0.0291      0.18  Q         |    V     |          |          |
12+50       0.0304      0.19  Q         |     V    |          |          |
12+55       0.0318      0.19  Q         |     V    |          |          |
13+ 0       0.0331      0.19  Q         |      V   |          |          |
13+ 5       0.0349      0.25  |Q        |       V  |          |          |
13+10       0.0366      0.25  |Q        |        V |          |          |
13+15       0.0383      0.25  |Q        |         V|          |          |
13+20       0.0401      0.26  |Q        |          |V         |          |
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13+25       0.0419      0.26  |Q        |          | V       |          |
13+30       0.0436      0.26  |Q        |          |  V      |          |
13+35       0.0445      0.13  Q         |          |  V      |          |
13+40       0.0454      0.13  Q         |          |  V      |          |
13+45       0.0463      0.13  Q         |          |   V     |          |
13+50       0.0472      0.13  Q         |          |   V     |          |
13+55       0.0481      0.13  Q         |          |    V    |          |
14+ 0       0.0490      0.13  Q         |          |    V    |          |
14+ 5       0.0502      0.18  Q         |          |     V   |          |
14+10       0.0515      0.18  Q         |          |      V  |          |
14+15       0.0527      0.18  Q         |          |      V  |          |
14+20       0.0539      0.17  Q         |          |       V |          |
14+25       0.0551      0.17  Q         |          |        V|          |
14+30       0.0562      0.17  Q         |          |        V|          |
14+35       0.0574      0.17  Q         |          |         V          |
14+40       0.0586      0.17  Q         |          |         V          |
14+45       0.0598      0.17  Q         |          |          V         |
14+50       0.0609      0.16  Q         |          |          | V       |
14+55       0.0621      0.16  Q         |          |          | V       |
15+ 0       0.0632      0.16  Q         |          |          |  V      |
15+ 5       0.0642      0.15  Q         |          |          |  V      |
15+10       0.0653      0.15  Q         |          |          |   V     |
15+15       0.0663      0.15  Q         |          |          |    V    |
15+20       0.0673      0.14  Q         |          |          |    V    |
15+25       0.0683      0.14  Q         |          |          |     V   |
15+30       0.0693      0.14  Q         |          |          |     V   |
15+35       0.0700      0.10  Q         |          |          |     V   |
15+40       0.0706      0.10  Q         |          |          |      V  |
15+45       0.0713      0.10  Q         |          |          |      V  |
15+50       0.0720      0.10  Q         |          |          |       V |
15+55       0.0727      0.10  Q         |          |          |       V |
16+ 0       0.0734      0.10  Q         |          |          |       V |
16+ 5       0.0734      0.00  Q         |          |          |       V |
16+10       0.0735      0.00  Q         |          |          |       V |
16+15       0.0735      0.00  Q         |          |          |       V |
16+20       0.0735      0.00  Q         |          |          |       V |
16+25       0.0736      0.00  Q         |          |          |       V |
16+30       0.0736      0.00  Q         |          |          |       V |
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16+35	0.0736	0.00	Q	|	|	|	V |
16+40	0.0736	0.00	Q	|	|	|	V |
16+45	0.0737	0.00	Q	|	|	|	V |
16+50	0.0737	0.00	Q	|	|	|	V |
16+55	0.0737	0.00	Q	|	|	|	V |
17+ 0	0.0737	0.00	Q	|	|	|	V |
17+ 5	0.0738	0.01	Q	|	|	|	V |
17+10	0.0738	0.01	Q	|	|	|	V |
17+15	0.0739	0.01	Q	|	|	|	V|
17+20	0.0739	0.01	Q	|	|	|	V|
17+25	0.0739	0.01	Q	|	|	|	V|
17+30	0.0740	0.01	Q	|	|	|	V|
17+35	0.0740	0.01	Q	|	|	|	V|
17+40	0.0741	0.01	Q	|	|	|	V|
17+45	0.0741	0.01	Q	|	|	|	V|
17+50	0.0741	0.00	Q	|	|	|	V|
17+55	0.0742	0.00	Q	|	|	|	V|
18+ 0	0.0742	0.00	Q	|	|	|	V|
18+ 5	0.0742	0.00	Q	|	|	|	V|
18+10	0.0743	0.00	Q	|	|	|	V|
18+15	0.0743	0.00	Q	|	|	|	V|
18+20	0.0743	0.00	Q	|	|	|	V|
18+25	0.0744	0.00	Q	|	|	|	V|
18+30	0.0744	0.00	Q	|	|	|	V|
18+35	0.0744	0.00	Q	|	|	|	V|
18+40	0.0744	0.00	Q	|	|	|	V|
18+45	0.0745	0.00	Q	|	|	|	V|
18+50	0.0745	0.00	Q	|	|	|	V|
18+55	0.0745	0.00	Q	|	|	|	V|
19+ 0	0.0745	0.00	Q	|	|	|	V|
19+ 5	0.0745	0.00	Q	|	|	|	V|
19+10	0.0746	0.00	Q	|	|	|	V|
19+15	0.0746	0.00	Q	|	|	|	V|
19+20	0.0746	0.00	Q	|	|	|	V|
19+25	0.0747	0.00	Q	|	|	|	V|
19+30	0.0747	0.00	Q	|	|	|	V|
19+35	0.0747	0.00	Q	|	|	|	V|
19+40	0.0747	0.00	Q	|	|	|	V|

19+45	0.0748	0.00	Q	|	|	|	V|
19+50	0.0748	0.00	Q	|	|	|	V|
19+55	0.0748	0.00	Q	|	|	|	V|
20+ 0	0.0748	0.00	Q	|	|	|	V|
20+ 5	0.0748	0.00	Q	|	|	|	V|
20+10	0.0749	0.00	Q	|	|	|	V|
20+15	0.0749	0.00	Q	|	|	|	V|
20+20	0.0749	0.00	Q	|	|	|	V|
20+25	0.0749	0.00	Q	|	|	|	V|
20+30	0.0750	0.00	Q	|	|	|	V|
20+35	0.0750	0.00	Q	|	|	|	V|
20+40	0.0750	0.00	Q	|	|	|	V|
20+45	0.0750	0.00	Q	|	|	|	V|
20+50	0.0750	0.00	Q	|	|	|	V|
20+55	0.0751	0.00	Q	|	|	|	V|
21+ 0	0.0751	0.00	Q	|	|	|	V|
21+ 5	0.0751	0.00	Q	|	|	|	V|
21+10	0.0751	0.00	Q	|	|	|	V|
21+15	0.0751	0.00	Q	|	|	|	V|
21+20	0.0752	0.00	Q	|	|	|	V|
21+25	0.0752	0.00	Q	|	|	|	V|
21+30	0.0752	0.00	Q	|	|	|	V|
21+35	0.0752	0.00	Q	|	|	|	V|
21+40	0.0752	0.00	Q	|	|	|	V|
21+45	0.0753	0.00	Q	|	|	|	V|
21+50	0.0753	0.00	Q	|	|	|	V|
21+55	0.0753	0.00	Q	|	|	|	V|
22+ 0	0.0753	0.00	Q	|	|	|	V|
22+ 5	0.0753	0.00	Q	|	|	|	V|
22+10	0.0754	0.00	Q	|	|	|	V|
22+15	0.0754	0.00	Q	|	|	|	V|
22+20	0.0754	0.00	Q	|	|	|	V|
22+25	0.0754	0.00	Q	|	|	|	V|
22+30	0.0754	0.00	Q	|	|	|	V|
22+35	0.0755	0.00	Q	|	|	|	V|
22+40	0.0755	0.00	Q	|	|	|	V|
22+45	0.0755	0.00	Q	|	|	|	V|
22+50	0.0755	0.00	Q	|	|	|	V|

```
   22+55       0.0755      0.00  Q          |          |          |         V|
   23+ 0       0.0755      0.00  Q          |          |          |         V|
   23+ 5       0.0756      0.00  Q          |          |          |         V|
   23+10       0.0756      0.00  Q          |          |          |         V|
   23+15       0.0756      0.00  Q          |          |          |         V|
   23+20       0.0756      0.00  Q          |          |          |         V|
   23+25       0.0756      0.00  Q          |          |          |         V|
   23+30       0.0756      0.00  Q          |          |          |         V|
   23+35       0.0756      0.00  Q          |          |          |         V|
   23+40       0.0757      0.00  Q          |          |          |         V|
   23+45       0.0757      0.00  Q          |          |          |         V|
   23+50       0.0757      0.00  Q          |          |          |         V|
   23+55       0.0757      0.00  Q          |          |          |         V|
   24+ 0       0.0757      0.00  Q          |          |          |          V
-------------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 9- 100 YR, 1-hr

Drainage Area = 0.47(Ac.) = 0.001 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 0.47(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 65.00(Ft.)
Length along longest watercourse measured to centroid = 30.00(Ft.)
Length along longest watercourse = 0.012 Mi.
Length along longest watercourse measured to centroid = 0.006 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 81.2308 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.004 Hr.
Lag time =     0.25 Min.
25% of lag time =     0.06 Min.
40% of lag time =     0.10 Min.
Unit time =     5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.47             0.51                 0.24

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.47             1.61                 0.76

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.514(In)
Area Averaged 100-Year Rainfall =    1.610(In)

Point rain (area averaged) =    1.610(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    1.610(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     0.470           61.60          0.200
 Total Area Entered =      0.47(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
61.6  61.6      0.453     0.200        0.371        1.000      0.371
```

Sum (F) = 0.371

Area averaged mean soil loss (F) (In/Hr) = 0.371
Minimum soil loss rate ((In/Hr)) = 0.186
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

Slope of intensity-duration curve for a 1 hour storm =0.5500

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	2024.659	100.000	0.474
		Sum = 100.000	Sum= 0.474

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	3.30	0.638	0.371	(0.574)	0.266
2	0.17	4.20	0.811	0.371	(0.730)	0.440
3	0.25	4.40	0.850	0.371	(0.765)	0.479
4	0.33	4.80	0.927	0.371	(0.835)	0.556
5	0.42	5.20	1.005	0.371		

U n i t H y d r o g r a p h A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 9- 100 YR, 3-hr

Drainage Area = 0.47(Ac.) = 0.001 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 0.47(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 65.00(Ft.)
Length along longest watercourse measured to centroid = 30.00(Ft.)
Length along longest watercourse = 0.012 Mi.
Length along longest watercourse measured to centroid = 0.006 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 81.2308 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.004 Hr.
Lag time =     0.25 Min.
25% of lag time =     0.06 Min.
40% of lag time =     0.10 Min.
Unit time =     5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.47             0.86                 0.41

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.47             2.25                 1.06

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.864(In)
Area Averaged 100-Year Rainfall =    2.250(In)

Point rain (area averaged) =    2.250(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.250(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     0.470           61.60         0.200
 Total Area Entered =      0.47(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
61.6  61.6      0.453     0.200        0.371        1.000      0.371
```

Sum (F) = 0.371

Area averaged mean soil loss (F) (In/Hr) = 0.371
Minimum soil loss rate ((In/Hr)) = 0.186
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	2024.659	100.000	0.474
		Sum = 100.000	Sum= 0.474

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.351	(0.371)	0.316	0.035
2	0.17	1.30	0.351	(0.371)	0.316	0.035
3	0.25	1.10	0.297	(0.371)	0.267	0.030
4	0.33	1.50	0.405	(0.371)	0.364	0.040
5	0.42	1.50	0.405	(0.371)	0.364	0.040
6	0.50	1.80	0.486	0.371	(0.437)	0.115
7	0.58	1.50	0.405	(0.371)	0.364	0.040
8	0.67	1.80	0.486	0.371	(0.437)	0.115
9	0.75	1.80	0.486	0.371	(0.437)	0.115
10	0.83	1.50	0.405	(0.371)	0.364	0.040
11	0.92	1.60	0.432	0.371	(0.389)	0.061
12	1.00	1.80	0.486	0.371	(0.437)	0.115
13	1.08	2.20	0.594	0.371	(0.535)	0.223

```
14   1.17     2.20      0.594          0.371    (  0.535)         0.223
15   1.25     2.20      0.594          0.371    (  0.535)         0.223
16   1.33     2.00      0.540          0.371    (  0.486)         0.169
17   1.42     2.60      0.702          0.371    (  0.632)         0.331
18   1.50     2.70      0.729          0.371    (  0.656)         0.358
19   1.58     2.40      0.648          0.371    (  0.583)         0.277
20   1.67     2.70      0.729          0.371    (  0.656)         0.358
21   1.75     3.30      0.891          0.371    (  0.802)         0.520
22   1.83     3.10      0.837          0.371    (  0.753)         0.466
23   1.92     2.90      0.783          0.371    (  0.705)         0.412
24   2.00     3.00      0.810          0.371    (  0.729)         0.439
25   2.08     3.10      0.837          0.371    (  0.753)         0.466
26   2.17     4.20      1.134          0.371    (  1.021)         0.763
27   2.25     5.00      1.350          0.371    (  1.215)         0.979
28   2.33     3.50      0.945          0.371    (  0.850)         0.574
29   2.42     6.80      1.836          0.371    (  1.652)         1.465
30   2.50     7.30      1.971          0.371    (  1.774)         1.600
31   2.58     8.20      2.214          0.371    (  1.993)         1.843
32   2.67     5.90      1.593          0.371    (  1.434)         1.222
33   2.75     2.00      0.540          0.371    (  0.486)         0.169
34   2.83     1.80      0.486          0.371    (  0.437)         0.115
35   2.92     1.80      0.486          0.371    (  0.437)         0.115
36   3.00     0.60      0.162       (  0.371)       0.146         0.016
          (Loss Rate Not Used)
   Sum =     100.0                                    Sum =    14.1
    Flood volume = Effective rainfall      1.18(In)
     times area       0.5(Ac.)/[(In)/(Ft.)] =       0.0(Ac.Ft)
    Total soil loss =      1.07(In)
    Total soil loss =     0.042(Ac.Ft)
    Total rainfall =      2.25(In)
    Flood volume =        2005.0 Cubic Feet
    Total soil loss =        1833.7 Cubic Feet
    ----------------------------------------------------------------------
     Peak flow rate of this hydrograph =      0.873(CFS)
    ----------------------------------------------------------------------
    ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        3 - H O U R    S T O R M
                    R u n o f f      H y d r o g r a p h
```

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0001	0.02	Q				
0+10	0.0002	0.02	Q				
0+15	0.0003	0.01	Q				
0+20	0.0005	0.02	Q				
0+25	0.0006	0.02	Q				
0+30	0.0010	0.05	Q				
0+35	0.0011	0.02	Q				
0+40	0.0015	0.05	QV				
0+45	0.0018	0.05	QV				
0+50	0.0020	0.02	QV				
0+55	0.0022	0.03	QV				

U n i t H y d r o g r a p h A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 9- 100 YR, 6-hr

Drainage Area = 0.47(Ac.) = 0.001 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 0.47(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 65.00(Ft.)
Length along longest watercourse measured to centroid = 30.00(Ft.)
Length along longest watercourse = 0.012 Mi.
Length along longest watercourse measured to centroid = 0.006 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 81.2308 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.004 Hr.
Lag time =     0.25 Min.
25% of lag time =     0.06 Min.
40% of lag time =     0.10 Min.
Unit time =     5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.47             1.20                 0.56

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.47             2.99                 1.41

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.200(In)
Area Averaged 100-Year Rainfall =    2.990(In)

Point rain (area averaged) =    2.990(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.990(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     0.470           61.60          0.200
 Total Area Entered =      0.47(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
61.6  61.6      0.453     0.200        0.371        1.000      0.371
```

Sum (F) = 0.371

Area averaged mean soil loss (F) (In/Hr) = 0.371
Minimum soil loss rate ((In/Hr)) = 0.186
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	2024.659	100.000	0.474
		Sum = 100.000	Sum= 0.474

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max		Low	Effective (In/Hr)
1	0.08	0.50	0.179	(0.371)		0.161	0.018
2	0.17	0.60	0.215	(0.371)		0.194	0.022
3	0.25	0.60	0.215	(0.371)		0.194	0.022
4	0.33	0.60	0.215	(0.371)		0.194	0.022
5	0.42	0.60	0.215	(0.371)		0.194	0.022
6	0.50	0.70	0.251	(0.371)		0.226	0.025
7	0.58	0.70	0.251	(0.371)		0.226	0.025
8	0.67	0.70	0.251	(0.371)		0.226	0.025
9	0.75	0.70	0.251	(0.371)		0.226	0.025
10	0.83	0.70	0.251	(0.371)		0.226	0.025
11	0.92	0.70	0.251	(0.371)		0.226	0.025
12	1.00	0.80	0.287	(0.371)		0.258	0.029
13	1.08	0.80	0.287	(0.371)		0.258	0.029

14	1.17	0.80	0.287	(0.371)	0.258	0.029
15	1.25	0.80	0.287	(0.371)	0.258	0.029
16	1.33	0.80	0.287	(0.371)	0.258	0.029
17	1.42	0.80	0.287	(0.371)	0.258	0.029
18	1.50	0.80	0.287	(0.371)	0.258	0.029
19	1.58	0.80	0.287	(0.371)	0.258	0.029
20	1.67	0.80	0.287	(0.371)	0.258	0.029
21	1.75	0.80	0.287	(0.371)	0.258	0.029
22	1.83	0.80	0.287	(0.371)	0.258	0.029
23	1.92	0.80	0.287	(0.371)	0.258	0.029
24	2.00	0.90	0.323	(0.371)	0.291	0.032
25	2.08	0.80	0.287	(0.371)	0.258	0.029
26	2.17	0.90	0.323	(0.371)	0.291	0.032
27	2.25	0.90	0.323	(0.371)	0.291	0.032
28	2.33	0.90	0.323	(0.371)	0.291	0.032
29	2.42	0.90	0.323	(0.371)	0.291	0.032
30	2.50	0.90	0.323	(0.371)	0.291	0.032
31	2.58	0.90	0.323	(0.371)	0.291	0.032
32	2.67	0.90	0.323	(0.371)	0.291	0.032
33	2.75	1.00	0.359	(0.371)	0.323	0.036
34	2.83	1.00	0.359	(0.371)	0.323	0.036
35	2.92	1.00	0.359	(0.371)	0.323	0.036
36	3.00	1.00	0.359	(0.371)	0.323	0.036
37	3.08	1.00	0.359	(0.371)	0.323	0.036
38	3.17	1.10	0.395	(0.371)	0.355	0.039
39	3.25	1.10	0.395	(0.371)	0.355	0.039
40	3.33	1.10	0.395	(0.371)	0.355	0.039
41	3.42	1.20	0.431	0.371	(0.388)	0.059
42	3.50	1.30	0.466	0.371	(0.420)	0.095
43	3.58	1.40	0.502	0.371	(0.452)	0.131
44	3.67	1.40	0.502	0.371	(0.452)	0.131
45	3.75	1.50	0.538	0.371	(0.484)	0.167
46	3.83	1.50	0.538	0.371	(0.484)	0.167
47	3.92	1.60	0.574	0.371	(0.517)	0.203
48	4.00	1.60	0.574	0.371	(0.517)	0.203
49	4.08	1.70	0.610	0.371	(0.549)	0.239
50	4.17	1.80	0.646	0.371	(0.581)	0.275
51	4.25	1.90	0.682	0.371	(0.614)	0.310

52	4.33	2.00	0.718	0.371	(	0.646)	0.346
53	4.42	2.10	0.753	0.371	(	0.678)	0.382
54	4.50	2.10	0.753	0.371	(	0.678)	0.382
55	4.58	2.20	0.789	0.371	(	0.710)	0.418
56	4.67	2.30	0.825	0.371	(	0.743)	0.454
57	4.75	2.40	0.861	0.371	(	0.775)	0.490
58	4.83	2.40	0.861	0.371	(	0.775)	0.490
59	4.92	2.50	0.897	0.371	(	0.807)	0.526
60	5.00	2.60	0.933	0.371	(	0.840)	0.562
61	5.08	3.10	1.112	0.371	(	1.001)	0.741
62	5.17	3.60	1.292	0.371	(	1.163)	0.920
63	5.25	3.90	1.399	0.371	(	1.259)	1.028
64	5.33	4.20	1.507	0.371	(	1.356)	1.136
65	5.42	4.70	1.686	0.371	(	1.518)	1.315
66	5.50	5.60	2.009	0.371	(	1.808)	1.638
67	5.58	1.90	0.682	0.371	(	0.614)	0.310
68	5.67	0.90	0.323	(0.371)		0.291	0.032
69	5.75	0.60	0.215	(0.371)		0.194	0.022
70	5.83	0.50	0.179	(0.371)		0.161	0.018
71	5.92	0.30	0.108	(0.371)		0.097	0.011
72	6.00	0.20	0.072	(0.371)		0.065	0.007

(Loss Rate Not Used)

Sum = 100.0 Sum = 14.4

Flood volume = Effective rainfall 1.20(In)
times area 0.5(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)

Total soil loss = 1.79(In)

Total soil loss = 0.070(Ac.Ft)

Total rainfall = 2.99(In)

Flood volume = 2046.3 Cubic Feet

Total soil loss = 3054.9 Cubic Feet

Peak flow rate of this hydrograph = 0.776(CFS)

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6 - H O U R S T O R M

R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0001	0.01	Q				
0+10	0.0001	0.01	Q				
0+15	0.0002	0.01	Q				
0+20	0.0003	0.01	Q				
0+25	0.0003	0.01	Q				
0+30	0.0004	0.01	Q				
0+35	0.0005	0.01	Q				
0+40	0.0006	0.01	Q				
0+45	0.0007	0.01	Q				
0+50	0.0007	0.01	Q				
0+55	0.0008	0.01	Q				
1+ 0	0.0009	0.01	Q				
1+ 5	0.0010	0.01	Q				
1+10	0.0011	0.01	Q				
1+15	0.0012	0.01	QV				
1+20	0.0013	0.01	QV				
1+25	0.0014	0.01	QV				
1+30	0.0015	0.01	QV				
1+35	0.0016	0.01	QV				
1+40	0.0017	0.01	QV				
1+45	0.0018	0.01	QV				
1+50	0.0019	0.01	QV				
1+55	0.0020	0.01	QV				
2+ 0	0.0021	0.02	QV				
2+ 5	0.0022	0.01	QV				
2+10	0.0023	0.02	QV				
2+15	0.0024	0.02	Q V				
2+20	0.0025	0.02	Q V				
2+25	0.0026	0.02	Q V				
2+30	0.0027	0.02	Q V				
2+35	0.0028						

U n i t H y d r o g r a p h A n a l y s i s

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Study date 01/03/23 File: VOLT924100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 9- 100 YR, 24-hr

Drainage Area = 0.47(Ac.) = 0.001 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 0.47(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 65.00(Ft.)
Length along longest watercourse measured to centroid = 30.00(Ft.)
Length along longest watercourse = 0.012 Mi.
Length along longest watercourse measured to centroid = 0.006 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 81.2308 Ft./Mi.

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Average Manning's 'N' = 0.015
Lag time =    0.004 Hr.
Lag time =     0.25 Min.
25% of lag time =     0.06 Min.
40% of lag time =     0.10 Min.
Unit time =     5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.47             2.06                  0.97

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.47             5.39                  2.53

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    2.060(In)
Area Averaged 100-Year Rainfall =    5.390(In)

Point rain (area averaged) =    5.390(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    5.390(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     0.470           61.60         0.200
 Total Area Entered =      0.47(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
61.6  61.6      0.453     0.200        0.371        1.000      0.371
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Sum (F) = 0.371

Area averaged mean soil loss (F) (In/Hr) = 0.371
Minimum soil loss rate ((In/Hr)) = 0.186
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	2024.659	100.000	0.474
		Sum = 100.000	Sum= 0.474

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.043	(0.658)	0.039	0.004
2	0.17	0.07	0.043	(0.656)	0.039	0.004
3	0.25	0.07	0.043	(0.653)	0.039	0.004
4	0.33	0.10	0.065	(0.650)	0.058	0.006
5	0.42	0.10	0.065	(0.648)	0.058	0.006
6	0.50	0.10	0.065	(0.645)	0.058	0.006
7	0.58	0.10	0.065	(0.643)	0.058	0.006
8	0.67	0.10	0.065	(0.640)	0.058	0.006
9	0.75	0.10	0.065	(0.638)	0.058	0.006
10	0.83	0.13	0.086	(0.635)	0.078	0.009
11	0.92	0.13	0.086	(0.633)	0.078	0.009
12	1.00	0.13	0.086	(0.630)	0.078	0.009
13	1.08	0.10	0.065	(0.628)	0.058	0.006

14	1.17	0.10	0.065	(0.625)	0.058	0.006
15	1.25	0.10	0.065	(0.623)	0.058	0.006
16	1.33	0.10	0.065	(0.620)	0.058	0.006
17	1.42	0.10	0.065	(0.618)	0.058	0.006
18	1.50	0.10	0.065	(0.615)	0.058	0.006
19	1.58	0.10	0.065	(0.613)	0.058	0.006
20	1.67	0.10	0.065	(0.611)	0.058	0.006
21	1.75	0.10	0.065	(0.608)	0.058	0.006
22	1.83	0.13	0.086	(0.606)	0.078	0.009
23	1.92	0.13	0.086	(0.603)	0.078	0.009
24	2.00	0.13	0.086	(0.601)	0.078	0.009
25	2.08	0.13	0.086	(0.598)	0.078	0.009
26	2.17	0.13	0.086	(0.596)	0.078	0.009
27	2.25	0.13	0.086	(0.594)	0.078	0.009
28	2.33	0.13	0.086	(0.591)	0.078	0.009
29	2.42	0.13	0.086	(0.589)	0.078	0.009
30	2.50	0.13	0.086	(0.586)	0.078	0.009
31	2.58	0.17	0.108	(0.584)	0.097	0.011
32	2.67	0.17	0.108	(0.582)	0.097	0.011
33	2.75	0.17	0.108	(0.579)	0.097	0.011
34	2.83	0.17	0.108	(0.577)	0.097	0.011
35	2.92	0.17	0.108	(0.574)	0.097	0.011
36	3.00	0.17	0.108	(0.572)	0.097	0.011
37	3.08	0.17	0.108	(0.570)	0.097	0.011
38	3.17	0.17	0.108	(0.567)	0.097	0.011
39	3.25	0.17	0.108	(0.565)	0.097	0.011
40	3.33	0.17	0.108	(0.563)	0.097	0.011
41	3.42	0.17	0.108	(0.560)	0.097	0.011
42	3.50	0.17	0.108	(0.558)	0.097	0.011
43	3.58	0.17	0.108	(0.556)	0.097	0.011
44	3.67	0.17	0.108	(0.553)	0.097	0.011
45	3.75	0.17	0.108	(0.551)	0.097	0.011
46	3.83	0.20	0.129	(0.549)	0.116	0.013
47	3.92	0.20	0.129	(0.546)	0.116	0.013
48	4.00	0.20	0.129	(0.544)	0.116	0.013
49	4.08	0.20	0.129	(0.542)	0.116	0.013
50	4.17	0.20	0.129	(0.539)	0.116	0.013
51	4.25	0.20	0.129	(0.537)	0.116	0.013

52	4.33	0.23	0.151	(0.535)	0.136	0.015
53	4.42	0.23	0.151	(0.532)	0.136	0.015
54	4.50	0.23	0.151	(0.530)	0.136	0.015
55	4.58	0.23	0.151	(0.528)	0.136	0.015
56	4.67	0.23	0.151	(0.526)	0.136	0.015
57	4.75	0.23	0.151	(0.523)	0.136	0.015
58	4.83	0.27	0.172	(0.521)	0.155	0.017
59	4.92	0.27	0.172	(0.519)	0.155	0.017
60	5.00	0.27	0.172	(0.517)	0.155	0.017
61	5.08	0.20	0.129	(0.514)	0.116	0.013
62	5.17	0.20	0.129	(0.512)	0.116	0.013
63	5.25	0.20	0.129	(0.510)	0.116	0.013
64	5.33	0.23	0.151	(0.508)	0.136	0.015
65	5.42	0.23	0.151	(0.505)	0.136	0.015
66	5.50	0.23	0.151	(0.503)	0.136	0.015
67	5.58	0.27	0.172	(0.501)	0.155	0.017
68	5.67	0.27	0.172	(0.499)	0.155	0.017
69	5.75	0.27	0.172	(0.497)	0.155	0.017
70	5.83	0.27	0.172	(0.494)	0.155	0.017
71	5.92	0.27	0.172	(0.492)	0.155	0.017
72	6.00	0.27	0.172	(0.490)	0.155	0.017
73	6.08	0.30	0.194	(0.488)	0.175	0.019
74	6.17	0.30	0.194	(0.486)	0.175	0.019
75	6.25	0.30	0.194	(0.484)	0.175	0.019
76	6.33	0.30	0.194	(0.481)	0.175	0.019
77	6.42	0.30	0.194	(0.479)	0.175	0.019
78	6.50	0.30	0.194	(0.477)	0.175	0.019
79	6.58	0.33	0.216	(0.475)	0.194	0.022
80	6.67	0.33	0.216	(0.473)	0.194	0.022
81	6.75	0.33	0.216	(0.471)	0.194	0.022
82	6.83	0.33	0.216	(0.469)	0.194	0.022
83	6.92	0.33	0.216	(0.466)	0.194	0.022
84	7.00	0.33	0.216	(0.464)	0.194	0.022
85	7.08	0.33	0.216	(0.462)	0.194	0.022
86	7.17	0.33	0.216	(0.460)	0.194	0.022
87	7.25	0.33	0.216	(0.458)	0.194	0.022
88	7.33	0.37	0.237	(0.456)	0.213	0.024
89	7.42	0.37	0.237	(0.454)	0.213	0.024

90	7.50	0.37	0.237	(0.452)	0.213	0.024
91	7.58	0.40	0.259	(0.450)	0.233	0.026
92	7.67	0.40	0.259	(0.448)	0.233	0.026
93	7.75	0.40	0.259	(0.445)	0.233	0.026
94	7.83	0.43	0.280	(0.443)	0.252	0.028
95	7.92	0.43	0.280	(0.441)	0.252	0.028
96	8.00	0.43	0.280	(0.439)	0.252	0.028
97	8.08	0.50	0.323	(0.437)	0.291	0.032
98	8.17	0.50	0.323	(0.435)	0.291	0.032
99	8.25	0.50	0.323	(0.433)	0.291	0.032
100	8.33	0.50	0.323	(0.431)	0.291	0.032
101	8.42	0.50	0.323	(0.429)	0.291	0.032
102	8.50	0.50	0.323	(0.427)	0.291	0.032
103	8.58	0.53	0.345	(0.425)	0.310	0.034
104	8.67	0.53	0.345	(0.423)	0.310	0.034
105	8.75	0.53	0.345	(0.421)	0.310	0.034
106	8.83	0.57	0.367	(0.419)	0.330	0.037
107	8.92	0.57	0.367	(0.417)	0.330	0.037
108	9.00	0.57	0.367	(0.415)	0.330	0.037
109	9.08	0.63	0.410	(0.413)	0.369	0.041
110	9.17	0.63	0.410	(0.411)	0.369	0.041
111	9.25	0.63	0.410	(0.409)	0.369	0.041
112	9.33	0.67	0.431	(0.407)	0.388	0.043
113	9.42	0.67	0.431	(0.405)	0.388	0.043
114	9.50	0.67	0.431	(0.404)	0.388	0.043
115	9.58	0.70	0.453	0.402	(0.407)	0.051
116	9.67	0.70	0.453	0.400	(0.407)	0.053
117	9.75	0.70	0.453	0.398	(0.407)	0.055
118	9.83	0.73	0.474	0.396	(0.427)	0.078
119	9.92	0.73	0.474	0.394	(0.427)	0.080
120	10.00	0.73	0.474	0.392	(0.427)	0.082
121	10.08	0.50	0.323	(0.390)	0.291	0.032
122	10.17	0.50	0.323	(0.388)	0.291	0.032
123	10.25	0.50	0.323	(0.386)	0.291	0.032
124	10.33	0.50	0.323	(0.384)	0.291	0.032
125	10.42	0.50	0.323	(0.383)	0.291	0.032
126	10.50	0.50	0.323	(0.381)	0.291	0.032
127	10.58	0.67	0.431	0.379	(0.388)	0.052

128	10.67	0.67	0.431	0.377	(0.388)	0.054
129	10.75	0.67	0.431	0.375	(0.388)	0.056
130	10.83	0.67	0.431	0.373	(0.388)	0.058
131	10.92	0.67	0.431	0.372	(0.388)	0.060
132	11.00	0.67	0.431	0.370	(0.388)	0.062
133	11.08	0.63	0.410	0.368	(0.369)	0.042
134	11.17	0.63	0.410	0.366	(0.369)	0.044
135	11.25	0.63	0.410	0.364	(0.369)	0.045
136	11.33	0.63	0.410	0.362	(0.369)	0.047
137	11.42	0.63	0.410	0.361	(0.369)	0.049
138	11.50	0.63	0.410	0.359	(0.369)	0.051
139	11.58	0.57	0.367	(0.357)	0.330	0.037
140	11.67	0.57	0.367	(0.355)	0.330	0.037
141	11.75	0.57	0.367	(0.354)	0.330	0.037
142	11.83	0.60	0.388	(0.352)	0.349	0.039
143	11.92	0.60	0.388	(0.350)	0.349	0.039
144	12.00	0.60	0.388	0.348	(0.349)	0.040
145	12.08	0.83	0.539	0.347	(0.485)	0.192
146	12.17	0.83	0.539	0.345	(0.485)	0.194
147	12.25	0.83	0.539	0.343	(0.485)	0.196
148	12.33	0.87	0.561	0.341	(0.505)	0.219
149	12.42	0.87	0.561	0.340	(0.505)	0.221
150	12.50	0.87	0.561	0.338	(0.505)	0.223
151	12.58	0.93	0.604	0.336	(0.543)	0.267
152	12.67	0.93	0.604	0.335	(0.543)	0.269
153	12.75	0.93	0.604	0.333	(0.543)	0.271
154	12.83	0.97	0.625	0.331	(0.563)	0.294
155	12.92	0.97	0.625	0.329	(0.563)	0.296
156	13.00	0.97	0.625	0.328	(0.563)	0.297
157	13.08	1.13	0.733	0.326	(0.660)	0.407
158	13.17	1.13	0.733	0.325	(0.660)	0.409
159	13.25	1.13	0.733	0.323	(0.660)	0.410
160	13.33	1.13	0.733	0.321	(0.660)	0.412
161	13.42	1.13	0.733	0.320	(0.660)	0.413
162	13.50	1.13	0.733	0.318	(0.660)	0.415
163	13.58	0.77	0.496	0.316	(0.446)	0.180
164	13.67	0.77	0.496	0.315	(0.446)	0.181
165	13.75	0.77	0.496	0.313	(0.446)	0.183

166	13.83	0.77	0.496	0.312	(0.446)	0.184
167	13.92	0.77	0.496	0.310	(0.446)	0.186
168	14.00	0.77	0.496	0.308	(0.446)	0.188
169	14.08	0.90	0.582	0.307	(0.524)	0.275
170	14.17	0.90	0.582	0.305	(0.524)	0.277
171	14.25	0.90	0.582	0.304	(0.524)	0.278
172	14.33	0.87	0.561	0.302	(0.505)	0.258
173	14.42	0.87	0.561	0.301	(0.505)	0.260
174	14.50	0.87	0.561	0.299	(0.505)	0.262
175	14.58	0.87	0.561	0.297	(0.505)	0.263
176	14.67	0.87	0.561	0.296	(0.505)	0.265
177	14.75	0.87	0.561	0.294	(0.505)	0.266
178	14.83	0.83	0.539	0.293	(0.485)	0.246
179	14.92	0.83	0.539	0.291	(0.485)	0.248
180	15.00	0.83	0.539	0.290	(0.485)	0.249
181	15.08	0.80	0.517	0.288	(0.466)	0.229
182	15.17	0.80	0.517	0.287	(0.466)	0.230
183	15.25	0.80	0.517	0.286	(0.466)	0.232
184	15.33	0.77	0.496	0.284	(0.446)	0.212
185	15.42	0.77	0.496	0.283	(0.446)	0.213
186	15.50	0.77	0.496	0.281	(0.446)	0.215
187	15.58	0.63	0.410	0.280	(0.369)	0.130
188	15.67	0.63	0.410	0.278	(0.369)	0.131
189	15.75	0.63	0.410	0.277	(0.369)	0.133
190	15.83	0.63	0.410	0.275	(0.369)	0.134
191	15.92	0.63	0.410	0.274	(0.369)	0.136
192	16.00	0.63	0.410	0.273	(0.369)	0.137
193	16.08	0.13	0.086	(0.271)	0.078	0.009
194	16.17	0.13	0.086	(0.270)	0.078	0.009
195	16.25	0.13	0.086	(0.268)	0.078	0.009
196	16.33	0.13	0.086	(0.267)	0.078	0.009
197	16.42	0.13	0.086	(0.266)	0.078	0.009
198	16.50	0.13	0.086	(0.264)	0.078	0.009
199	16.58	0.10	0.065	(0.263)	0.058	0.006
200	16.67	0.10	0.065	(0.262)	0.058	0.006
201	16.75	0.10	0.065	(0.260)	0.058	0.006
202	16.83	0.10	0.065	(0.259)	0.058	0.006
203	16.92	0.10	0.065	(0.258)	0.058	0.006

204	17.00	0.10	0.065	(0.256)	0.058	0.006
205	17.08	0.17	0.108	(0.255)	0.097	0.011
206	17.17	0.17	0.108	(0.254)	0.097	0.011
207	17.25	0.17	0.108	(0.253)	0.097	0.011
208	17.33	0.17	0.108	(0.251)	0.097	0.011
209	17.42	0.17	0.108	(0.250)	0.097	0.011
210	17.50	0.17	0.108	(0.249)	0.097	0.011
211	17.58	0.17	0.108	(0.248)	0.097	0.011
212	17.67	0.17	0.108	(0.246)	0.097	0.011
213	17.75	0.17	0.108	(0.245)	0.097	0.011
214	17.83	0.13	0.086	(0.244)	0.078	0.009
215	17.92	0.13	0.086	(0.243)	0.078	0.009
216	18.00	0.13	0.086	(0.241)	0.078	0.009
217	18.08	0.13	0.086	(0.240)	0.078	0.009
218	18.17	0.13	0.086	(0.239)	0.078	0.009
219	18.25	0.13	0.086	(0.238)	0.078	0.009
220	18.33	0.13	0.086	(0.237)	0.078	0.009
221	18.42	0.13	0.086	(0.236)	0.078	0.009
222	18.50	0.13	0.086	(0.234)	0.078	0.009
223	18.58	0.10	0.065	(0.233)	0.058	0.006
224	18.67	0.10	0.065	(0.232)	0.058	0.006
225	18.75	0.10	0.065	(0.231)	0.058	0.006
226	18.83	0.07	0.043	(0.230)	0.039	0.004
227	18.92	0.07	0.043	(0.229)	0.039	0.004
228	19.00	0.07	0.043	(0.228)	0.039	0.004
229	19.08	0.10	0.065	(0.227)	0.058	0.006
230	19.17	0.10	0.065	(0.226)	0.058	0.006
231	19.25	0.10	0.065	(0.225)	0.058	0.006
232	19.33	0.13	0.086	(0.224)	0.078	0.009
233	19.42	0.13	0.086	(0.223)	0.078	0.009
234	19.50	0.13	0.086	(0.221)	0.078	0.009
235	19.58	0.10	0.065	(0.220)	0.058	0.006
236	19.67	0.10	0.065	(0.219)	0.058	0.006
237	19.75	0.10	0.065	(0.218)	0.058	0.006
238	19.83	0.07	0.043	(0.218)	0.039	0.004
239	19.92	0.07	0.043	(0.217)	0.039	0.004
240	20.00	0.07	0.043	(0.216)	0.039	0.004
241	20.08	0.10	0.065	(0.215)	0.058	0.006

242	20.17	0.10	0.065	(0.214)	0.058	0.006
243	20.25	0.10	0.065	(0.213)	0.058	0.006
244	20.33	0.10	0.065	(0.212)	0.058	0.006
245	20.42	0.10	0.065	(0.211)	0.058	0.006
246	20.50	0.10	0.065	(0.210)	0.058	0.006
247	20.58	0.10	0.065	(0.209)	0.058	0.006
248	20.67	0.10	0.065	(0.208)	0.058	0.006
249	20.75	0.10	0.065	(0.207)	0.058	0.006
250	20.83	0.07	0.043	(0.207)	0.039	0.004
251	20.92	0.07	0.043	(0.206)	0.039	0.004
252	21.00	0.07	0.043	(0.205)	0.039	0.004
253	21.08	0.10	0.065	(0.204)	0.058	0.006
254	21.17	0.10	0.065	(0.203)	0.058	0.006
255	21.25	0.10	0.065	(0.202)	0.058	0.006
256	21.33	0.07	0.043	(0.202)	0.039	0.004
257	21.42	0.07	0.043	(0.201)	0.039	0.004
258	21.50	0.07	0.043	(0.200)	0.039	0.004
259	21.58	0.10	0.065	(0.199)	0.058	0.006
260	21.67	0.10	0.065	(0.199)	0.058	0.006
261	21.75	0.10	0.065	(0.198)	0.058	0.006
262	21.83	0.07	0.043	(0.197)	0.039	0.004
263	21.92	0.07	0.043	(0.197)	0.039	0.004
264	22.00	0.07	0.043	(0.196)	0.039	0.004
265	22.08	0.10	0.065	(0.195)	0.058	0.006
266	22.17	0.10	0.065	(0.195)	0.058	0.006
267	22.25	0.10	0.065	(0.194)	0.058	0.006
268	22.33	0.07	0.043	(0.193)	0.039	0.004
269	22.42	0.07	0.043	(0.193)	0.039	0.004
270	22.50	0.07	0.043	(0.192)	0.039	0.004
271	22.58	0.07	0.043	(0.192)	0.039	0.004
272	22.67	0.07	0.043	(0.191)	0.039	0.004
273	22.75	0.07	0.043	(0.191)	0.039	0.004
274	22.83	0.07	0.043	(0.190)	0.039	0.004
275	22.92	0.07	0.043	(0.190)	0.039	0.004
276	23.00	0.07	0.043	(0.189)	0.039	0.004
277	23.08	0.07	0.043	(0.189)	0.039	0.004
278	23.17	0.07	0.043	(0.188)	0.039	0.004
279	23.25	0.07	0.043	(0.188)	0.039	0.004

```
280  23.33     0.07      0.043       (  0.188)       0.039        0.004
281  23.42     0.07      0.043       (  0.187)       0.039        0.004
282  23.50     0.07      0.043       (  0.187)       0.039        0.004
283  23.58     0.07      0.043       (  0.187)       0.039        0.004
284  23.67     0.07      0.043       (  0.186)       0.039        0.004
285  23.75     0.07      0.043       (  0.186)       0.039        0.004
286  23.83     0.07      0.043       (  0.186)       0.039        0.004
287  23.92     0.07      0.043       (  0.186)       0.039        0.004
288  24.00     0.07      0.043       (  0.186)       0.039        0.004
           (Loss Rate Not Used)
    Sum =     100.0                                  Sum =    15.8
     Flood volume = Effective rainfall      1.32(In)
      times area       0.5(Ac.)/[(In)/(Ft.)] =       0.1(Ac.Ft)
     Total soil loss =      4.07(In)
     Total soil loss =     0.159(Ac.Ft)
     Total rainfall =      5.39(In)
     Flood volume =        2251.2 Cubic Feet
     Total soil loss =        6944.6 Cubic Feet
     ---------------------------------------------------------------------
      Peak flow rate of this hydrograph =      0.197(CFS)
     ---------------------------------------------------------------------
     +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        24 - H O U R    S T O R M
                   R u n o f f      H y d r o g r a p h
     ---------------------------------------------------------------------
                 Hydrograph in   5   Minute intervals ((CFS))

     ---------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
 ---------------------------------------------------------------------
   0+ 5       0.0000      0.00  Q         |         |         |         |
   0+10       0.0000      0.00  Q         |         |         |         |
   0+15       0.0000      0.00  Q         |         |         |         |
   0+20       0.0001      0.00  Q         |         |         |         |
   0+25       0.0001      0.00  Q         |         |         |         |
   0+30       0.0001      0.00  Q         |         |         |         |
   0+35       0.0001      0.00  Q         |         |         |         |
   0+40       0.0001      0.00  Q         |         |         |         |
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0+45	0.0002	0.00	Q	|	|	|	|
0+50	0.0002	0.00	Q	|	|	|	|
0+55	0.0002	0.00	Q	|	|	|	|
1+ 0	0.0003	0.00	Q	|	|	|	|
1+ 5	0.0003	0.00	Q	|	|	|	|
1+10	0.0003	0.00	Q	|	|	|	|
1+15	0.0003	0.00	Q	|	|	|	|
1+20	0.0003	0.00	Q	|	|	|	|
1+25	0.0004	0.00	Q	|	|	|	|
1+30	0.0004	0.00	Q	|	|	|	|
1+35	0.0004	0.00	Q	|	|	|	|
1+40	0.0004	0.00	Q	|	|	|	|
1+45	0.0004	0.00	Q	|	|	|	|
1+50	0.0005	0.00	Q	|	|	|	|
1+55	0.0005	0.00	Q	|	|	|	|
2+ 0	0.0005	0.00	Q	|	|	|	|
2+ 5	0.0006	0.00	Q	|	|	|	|
2+10	0.0006	0.00	Q	|	|	|	|
2+15	0.0006	0.00	Q	|	|	|	|
2+20	0.0006	0.00	Q	|	|	|	|
2+25	0.0007	0.00	Q	|	|	|	|
2+30	0.0007	0.00	Q	|	|	|	|
2+35	0.0007	0.01	Q	|	|	|	|
2+40	0.0008	0.01	Q	|	|	|	|
2+45	0.0008	0.01	Q	|	|	|	|
2+50	0.0008	0.01	Q	|	|	|	|
2+55	0.0009	0.01	Q	|	|	|	|
3+ 0	0.0009	0.01	Q	|	|	|	|
3+ 5	0.0009	0.01	Q	|	|	|	|
3+10	0.0010	0.01	Q	|	|	|	|
3+15	0.0010	0.01	Q	|	|	|	|
3+20	0.0010	0.01	Q	|	|	|	|
3+25	0.0011	0.01	Q	|	|	|	|
3+30	0.0011	0.01	Q	|	|	|	|
3+35	0.0012	0.01	Q	|	|	|	|
3+40	0.0012	0.01	Q	|	|	|	|
3+45	0.0012	0.01	Q	|	|	|	|
3+50	0.0013	0.01	Q	|	|	|	|

3+55	0.0013	0.01	QV				
4+ 0	0.0014	0.01	QV				
4+ 5	0.0014	0.01	QV				
4+10	0.0014	0.01	QV				
4+15	0.0015	0.01	QV				
4+20	0.0015	0.01	QV				
4+25	0.0016	0.01	QV				
4+30	0.0016	0.01	QV				
4+35	0.0017	0.01	QV				
4+40	0.0017	0.01	QV				
4+45	0.0018	0.01	QV				
4+50	0.0018	0.01	QV				
4+55	0.0019	0.01	QV				
5+ 0	0.0019	0.01	QV				
5+ 5	0.0020	0.01	QV				
5+10	0.0020	0.01	QV				
5+15	0.0021	0.01	QV				
5+20	0.0021	0.01	QV				
5+25	0.0022	0.01	QV				
5+30	0.0022	0.01	QV				
5+35	0.0023	0.01	QV				
5+40	0.0023	0.01	QV				
5+45	0.0024	0.01	QV				
5+50	0.0024	0.01	QV				
5+55	0.0025	0.01	QV				
6+ 0	0.0026	0.01	QV				
6+ 5	0.0026	0.01	Q V				
6+10	0.0027	0.01	Q V				
6+15	0.0027	0.01	Q V				
6+20	0.0028	0.01	Q V				
6+25	0.0029	0.01	Q V				
6+30	0.0029	0.01	Q V				
6+35	0.0030	0.01	Q V				
6+40	0.0031	0.01	Q V				
6+45	0.0031	0.01	Q V				
6+50	0.0032	0.01	Q V				
6+55	0.0033	0.01	Q V				
7+ 0	0.0034	0.01	Q V				

7+ 5	0.0034	0.01	Q V	|	|	|	|
7+10	0.0035	0.01	Q V	|	|	|	|
7+15	0.0036	0.01	Q V	|	|	|	|
7+20	0.0036	0.01	Q V	|	|	|	|
7+25	0.0037	0.01	Q V	|	|	|	|
7+30	0.0038	0.01	Q V	|	|	|	|
7+35	0.0039	0.01	Q V	|	|	|	|
7+40	0.0040	0.01	Q V	|	|	|	|
7+45	0.0041	0.01	Q V	|	|	|	|
7+50	0.0041	0.01	Q V	|	|	|	|
7+55	0.0042	0.01	Q V	|	|	|	|
8+ 0	0.0043	0.01	Q V	|	|	|	|
8+ 5	0.0044	0.02	Q V	|	|	|	|
8+10	0.0045	0.02	Q V	|	|	|	|
8+15	0.0046	0.02	Q V	|	|	|	|
8+20	0.0047	0.02	Q V	|	|	|	|
8+25	0.0049	0.02	Q V	|	|	|	|
8+30	0.0050	0.02	Q V	|	|	|	|
8+35	0.0051	0.02	Q V	|	|	|	|
8+40	0.0052	0.02	Q V	|	|	|	|
8+45	0.0053	0.02	Q V	|	|	|	|
8+50	0.0054	0.02	Q V	|	|	|	|
8+55	0.0055	0.02	Q V	|	|	|	|
9+ 0	0.0057	0.02	Q V	|	|	|	|
9+ 5	0.0058	0.02	Q V	|	|	|	|
9+10	0.0059	0.02	Q V	|	|	|	|
9+15	0.0061	0.02	Q V	|	|	|	|
9+20	0.0062	0.02	Q V	|	|	|	|
9+25	0.0063	0.02	Q V	|	|	|	|
9+30	0.0065	0.02	Q V	|	|	|	|
9+35	0.0066	0.02	Q V	|	|	|	|
9+40	0.0068	0.03	Q V	|	|	|	|
9+45	0.0070	0.03	Q V	|	|	|	|
9+50	0.0073	0.04	Q V	|	|	|	|
9+55	0.0075	0.04	Q V	|	|	|	|
10+ 0	0.0078	0.04	Q V	|	|	|	|
10+ 5	0.0079	0.02	Q V	|	|	|	|
10+10	0.0080	0.02	Q V	|	|	|	|

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10+15       0.0081      0.02  Q     V   |          |          |          |
10+20       0.0082      0.02  Q     V   |          |          |          |
10+25       0.0083      0.02  Q     V   |          |          |          |
10+30       0.0084      0.02  Q     V   |          |          |          |
10+35       0.0086      0.02  Q     V   |          |          |          |
10+40       0.0088      0.03  Q     V   |          |          |          |
10+45       0.0090      0.03  Q     V   |          |          |          |
10+50       0.0091      0.03  Q      V  |          |          |          |
10+55       0.0093      0.03  Q      V  |          |          |          |
11+ 0       0.0095      0.03  Q      V  |          |          |          |
11+ 5       0.0097      0.02  Q      V  |          |          |          |
11+10       0.0098      0.02  Q      V  |          |          |          |
11+15       0.0100      0.02  Q      V  |          |          |          |
11+20       0.0101      0.02  Q      V  |          |          |          |
11+25       0.0103      0.02  Q      V  |          |          |          |
11+30       0.0104      0.02  Q       V |          |          |          |
11+35       0.0106      0.02  Q       V |          |          |          |
11+40       0.0107      0.02  Q       V |          |          |          |
11+45       0.0108      0.02  Q       V |          |          |          |
11+50       0.0109      0.02  Q       V |          |          |          |
11+55       0.0111      0.02  Q       V |          |          |          |
12+ 0       0.0112      0.02  Q       V |          |          |          |
12+ 5       0.0118      0.09  Q        V|          |          |          |
12+10       0.0124      0.09  Q        V|          |          |          |
12+15       0.0131      0.09  Q         V          |          |          |
12+20       0.0138      0.10  Q         V          |          |          |
12+25       0.0145      0.10  Q         |V         |          |          |
12+30       0.0152      0.11  Q         |V         |          |          |
12+35       0.0161      0.13  Q         | V        |          |          |
12+40       0.0170      0.13  Q         |  V       |          |          |
12+45       0.0179      0.13  Q         |  V       |          |          |
12+50       0.0188      0.14  Q         |   V      |          |          |
12+55       0.0198      0.14  Q         |    V     |          |          |
13+ 0       0.0208      0.14  Q         |     V    |          |          |
13+ 5       0.0221      0.19  Q         |      V   |          |          |
13+10       0.0234      0.19  Q         |       V  |          |          |
13+15       0.0248      0.19  Q         |        V |          |          |
13+20       0.0261      0.20  Q         |         V|          |          |
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13+25	0.0275	0.20	Q	|	|V | |
13+30	0.0288	0.20	Q	|	| V | |
13+35	0.0294	0.09	Q	|	| V | |
13+40	0.0300	0.09	Q	|	| V | |
13+45	0.0306	0.09	Q	|	| V | |
13+50	0.0312	0.09	Q	|	| V | |
13+55	0.0318	0.09	Q	|	| V | |
14+ 0	0.0324	0.09	Q	|	| V | |
14+ 5	0.0333	0.13	Q	|	| V | |
14+10	0.0342	0.13	Q	|	| V | |
14+15	0.0351	0.13	Q	|	| V | |
14+20	0.0360	0.12	Q	|	| V | |
14+25	0.0368	0.12	Q	|	| V | |
14+30	0.0377	0.12	Q	|	| V| |
14+35	0.0385	0.12	Q	|	| V| |
14+40	0.0394	0.13	Q	|	| V |
14+45	0.0403	0.13	Q	|	| |V |
14+50	0.0411	0.12	Q	|	| |V |
14+55	0.0419	0.12	Q	|	| | V |
15+ 0	0.0427	0.12	Q	|	| | V |
15+ 5	0.0434	0.11	Q	|	| | V |
15+10	0.0442	0.11	Q	|	| | V |
15+15	0.0450	0.11	Q	|	| | V |
15+20	0.0456	0.10	Q	|	| | V |
15+25	0.0463	0.10	Q	|	| | V |
15+30	0.0470	0.10	Q	|	| | V |
15+35	0.0475	0.06	Q	|	| | V |
15+40	0.0479	0.06	Q	|	| | V |
15+45	0.0483	0.06	Q	|	| | V |
15+50	0.0488	0.06	Q	|	| | V |
15+55	0.0492	0.06	Q	|	| | V |
16+ 0	0.0497	0.06	Q	|	| | V |
16+ 5	0.0497	0.00	Q	|	| | V |
16+10	0.0497	0.00	Q	|	| | V |
16+15	0.0497	0.00	Q	|	| | V |
16+20	0.0498	0.00	Q	|	| | V |
16+25	0.0498	0.00	Q	|	| | V |
16+30	0.0498	0.00	Q	|	| | V |

16+35	0.0498	0.00	Q	|	|	|	V |
16+40	0.0499	0.00	Q	|	|	|	V |
16+45	0.0499	0.00	Q	|	|	|	V |
16+50	0.0499	0.00	Q	|	|	|	V |
16+55	0.0499	0.00	Q	|	|	|	V |
17+ 0	0.0500	0.00	Q	|	|	|	V |
17+ 5	0.0500	0.01	Q	|	|	|	V |
17+10	0.0500	0.01	Q	|	|	|	V |
17+15	0.0501	0.01	Q	|	|	|	V |
17+20	0.0501	0.01	Q	|	|	|	V |
17+25	0.0501	0.01	Q	|	|	|	V |
17+30	0.0502	0.01	Q	|	|	|	V |
17+35	0.0502	0.01	Q	|	|	|	V |
17+40	0.0502	0.01	Q	|	|	|	V |
17+45	0.0503	0.01	Q	|	|	|	V |
17+50	0.0503	0.00	Q	|	|	|	V |
17+55	0.0503	0.00	Q	|	|	|	V |
18+ 0	0.0504	0.00	Q	|	|	|	V |
18+ 5	0.0504	0.00	Q	|	|	|	V |
18+10	0.0504	0.00	Q	|	|	|	V|
18+15	0.0504	0.00	Q	|	|	|	V|
18+20	0.0505	0.00	Q	|	|	|	V|
18+25	0.0505	0.00	Q	|	|	|	V|
18+30	0.0505	0.00	Q	|	|	|	V|
18+35	0.0505	0.00	Q	|	|	|	V|
18+40	0.0506	0.00	Q	|	|	|	V|
18+45	0.0506	0.00	Q	|	|	|	V|
18+50	0.0506	0.00	Q	|	|	|	V|
18+55	0.0506	0.00	Q	|	|	|	V|
19+ 0	0.0506	0.00	Q	|	|	|	V|
19+ 5	0.0506	0.00	Q	|	|	|	V|
19+10	0.0507	0.00	Q	|	|	|	V|
19+15	0.0507	0.00	Q	|	|	|	V|
19+20	0.0507	0.00	Q	|	|	|	V|
19+25	0.0507	0.00	Q	|	|	|	V|
19+30	0.0508	0.00	Q	|	|	|	V|
19+35	0.0508	0.00	Q	|	|	|	V|
19+40	0.0508	0.00	Q	|	|	|	V|

19+45	0.0508	0.00	Q	|	|	|	V|
19+50	0.0509	0.00	Q	|	|	|	V|
19+55	0.0509	0.00	Q	|	|	|	V|
20+ 0	0.0509	0.00	Q	|	|	|	V|
20+ 5	0.0509	0.00	Q	|	|	|	V|
20+10	0.0509	0.00	Q	|	|	|	V|
20+15	0.0509	0.00	Q	|	|	|	V|
20+20	0.0510	0.00	Q	|	|	|	V|
20+25	0.0510	0.00	Q	|	|	|	V|
20+30	0.0510	0.00	Q	|	|	|	V|
20+35	0.0510	0.00	Q	|	|	|	V|
20+40	0.0510	0.00	Q	|	|	|	V|
20+45	0.0511	0.00	Q	|	|	|	V|
20+50	0.0511	0.00	Q	|	|	|	V|
20+55	0.0511	0.00	Q	|	|	|	V|
21+ 0	0.0511	0.00	Q	|	|	|	V|
21+ 5	0.0511	0.00	Q	|	|	|	V|
21+10	0.0512	0.00	Q	|	|	|	V|
21+15	0.0512	0.00	Q	|	|	|	V|
21+20	0.0512	0.00	Q	|	|	|	V|
21+25	0.0512	0.00	Q	|	|	|	V|
21+30	0.0512	0.00	Q	|	|	|	V|
21+35	0.0512	0.00	Q	|	|	|	V|
21+40	0.0513	0.00	Q	|	|	|	V|
21+45	0.0513	0.00	Q	|	|	|	V|
21+50	0.0513	0.00	Q	|	|	|	V|
21+55	0.0513	0.00	Q	|	|	|	V|
22+ 0	0.0513	0.00	Q	|	|	|	V|
22+ 5	0.0513	0.00	Q	|	|	|	V|
22+10	0.0514	0.00	Q	|	|	|	V|
22+15	0.0514	0.00	Q	|	|	|	V|
22+20	0.0514	0.00	Q	|	|	|	V|
22+25	0.0514	0.00	Q	|	|	|	V|
22+30	0.0514	0.00	Q	|	|	|	V|
22+35	0.0514	0.00	Q	|	|	|	V|
22+40	0.0515	0.00	Q	|	|	|	V|
22+45	0.0515	0.00	Q	|	|	|	V|
22+50	0.0515	0.00	Q	|	|	|	V|

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   22+55       0.0515      0.00  Q          |          |          |         V|
   23+ 0       0.0515      0.00  Q          |          |          |         V|
   23+ 5       0.0515      0.00  Q          |          |          |         V|
   23+10       0.0515      0.00  Q          |          |          |         V|
   23+15       0.0516      0.00  Q          |          |          |         V|
   23+20       0.0516      0.00  Q          |          |          |         V|
   23+25       0.0516      0.00  Q          |          |          |         V|
   23+30       0.0516      0.00  Q          |          |          |         V|
   23+35       0.0516      0.00  Q          |          |          |         V|
   23+40       0.0516      0.00  Q          |          |          |         V|
   23+45       0.0516      0.00  Q          |          |          |         V|
   23+50       0.0517      0.00  Q          |          |          |         V|
   23+55       0.0517      0.00  Q          |          |          |         V|
   24+ 0       0.0517      0.00  Q          |          |          |         V|
-------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 10- 100 YR, 1-hr

Drainage Area = 0.63(Ac.) = 0.001 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 0.63(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 80.00(Ft.)
Length along longest watercourse measured to centroid = 40.00(Ft.)
Length along longest watercourse = 0.015 Mi.
Length along longest watercourse measured to centroid = 0.008 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 66.0000 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.005 Hr.
Lag time =     0.31 Min.
25% of lag time =     0.08 Min.
40% of lag time =     0.12 Min.
Unit time =     5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.63              0.51                 0.32

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.63              1.61                 1.01

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.514(In)
Area Averaged 100-Year Rainfall =    1.610(In)

Point rain (area averaged) =    1.610(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    1.610(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     0.630           32.00          0.200
 Total Area Entered =      0.63(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
32.0  32.0      0.742     0.200        0.608        1.000      0.608
```

Sum (F) = 0.608

Area averaged mean soil loss (F) (In/Hr) = 0.608
Minimum soil loss rate ((In/Hr)) = 0.304
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

Slope of intensity-duration curve for a 1 hour storm =0.5500

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	1612.406	100.000	0.635
		Sum = 100.000	Sum= 0.635

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	3.30	0.638	(0.608)	0.574	0.064
2	0.17	4.20	0.811	0.608	(0.730)	0.203
3	0.25	4.40	0.850	0.608	(0.765)	0.242
4	0.33	4.80	0.927	0.608	(0.835)	0.319
5	0.42	5.20	1.005	0.60		

U n i t H y d r o g r a p h A n a l y s i s

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Study date 01/03/23 File: VOLT103100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 10- 100 YR, 3-hr

Drainage Area = 0.63(Ac.) = 0.001 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 0.63(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 80.00(Ft.)
Length along longest watercourse measured to centroid = 40.00(Ft.)
Length along longest watercourse = 0.015 Mi.
Length along longest watercourse measured to centroid = 0.008 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 66.0000 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.005 Hr.
Lag time =     0.31 Min.
25% of lag time =     0.08 Min.
40% of lag time =     0.12 Min.
Unit time =     5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.63             0.86                  0.54

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.63             2.25                  1.42

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.864(In)
Area Averaged 100-Year Rainfall =    2.250(In)

Point rain (area averaged) =    2.250(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.250(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     0.630           32.00          0.200
 Total Area Entered =      0.63(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
32.0  32.0      0.742     0.200        0.608       1.000      0.608
```

Sum (F) = 0.608

Area averaged mean soil loss (F) (In/Hr) = 0.608
Minimum soil loss rate ((In/Hr)) = 0.304
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	1612.406	100.000	0.635
		Sum = 100.000	Sum= 0.635

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.351	(0.608)	0.316	0.035
2	0.17	1.30	0.351	(0.608)	0.316	0.035
3	0.25	1.10	0.297	(0.608)	0.267	0.030
4	0.33	1.50	0.405	(0.608)	0.364	0.040
5	0.42	1.50	0.405	(0.608)	0.364	0.040
6	0.50	1.80	0.486	(0.608)	0.437	0.049
7	0.58	1.50	0.405	(0.608)	0.364	0.040
8	0.67	1.80	0.486	(0.608)	0.437	0.049
9	0.75	1.80	0.486	(0.608)	0.437	0.049
10	0.83	1.50	0.405	(0.608)	0.364	0.040
11	0.92	1.60	0.432	(0.608)	0.389	0.043
12	1.00	1.80	0.486	(0.608)	0.437	0.049
13	1.08	2.20	0.594	(0.608)	0.535	0.059

```
14   1.17     2.20      0.594       (  0.608)       0.535        0.059
15   1.25     2.20      0.594       (  0.608)       0.535        0.059
16   1.33     2.00      0.540       (  0.608)       0.486        0.054
17   1.42     2.60      0.702          0.608    (  0.632)        0.094
18   1.50     2.70      0.729          0.608    (  0.656)        0.121
19   1.58     2.40      0.648       (  0.608)       0.583        0.065
20   1.67     2.70      0.729          0.608    (  0.656)        0.121
21   1.75     3.30      0.891          0.608    (  0.802)        0.283
22   1.83     3.10      0.837          0.608    (  0.753)        0.229
23   1.92     2.90      0.783          0.608    (  0.705)        0.175
24   2.00     3.00      0.810          0.608    (  0.729)        0.202
25   2.08     3.10      0.837          0.608    (  0.753)        0.229
26   2.17     4.20      1.134          0.608    (  1.021)        0.526
27   2.25     5.00      1.350          0.608    (  1.215)        0.742
28   2.33     3.50      0.945          0.608    (  0.850)        0.337
29   2.42     6.80      1.836          0.608    (  1.652)        1.228
30   2.50     7.30      1.971          0.608    (  1.774)        1.363
31   2.58     8.20      2.214          0.608    (  1.993)        1.606
32   2.67     5.90      1.593          0.608    (  1.434)        0.985
33   2.75     2.00      0.540       (  0.608)       0.486        0.054
34   2.83     1.80      0.486       (  0.608)       0.437        0.049
35   2.92     1.80      0.486       (  0.608)       0.437        0.049
36   3.00     0.60      0.162       (  0.608)       0.146        0.016
          (Loss Rate Not Used)
Sum =     100.0                                     Sum =      9.2
 Flood volume = Effective rainfall      0.77(In)
  times area       0.6(Ac.)/[(In)/(Ft.)] =       0.0(Ac.Ft)
 Total soil loss =      1.48(In)
 Total soil loss =     0.078(Ac.Ft)
 Total rainfall =      2.25(In)
 Flood volume =        1753.0 Cubic Feet
 Total soil loss =        3392.6 Cubic Feet
 ---------------------------------------------------------------------
  Peak flow rate of this hydrograph =      1.020(CFS)
 ---------------------------------------------------------------------
 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                    3 - H O U R    S T O R M
                R u n o f f     H y d r o g r a p h
```

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0002	0.02	Q				
0+10	0.0003	0.02	Q				
0+15	0.0004	0.02	Q				
0+20	0.0006	0.03	Q				
0+25	0.0008	0.03	Q				
0+30	0.0010	0.03	Q				
0+35	0.0012	0.03	QV				
0+40	0.0014	0.03	QV				
0+45	0.0016	0.03	QV				
0+50	0.0018	0.03	QV				
0+55	0.0020	0.03	QV				

U n i t H y d r o g r a p h A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 10- 100 YR, 6-hr

Drainage Area = 0.63(Ac.) = 0.001 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 0.63(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 80.00(Ft.)
Length along longest watercourse measured to centroid = 40.00(Ft.)
Length along longest watercourse = 0.015 Mi.
Length along longest watercourse measured to centroid = 0.008 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 66.0000 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.005 Hr.
Lag time =     0.31 Min.
25% of lag time =     0.08 Min.
40% of lag time =     0.12 Min.
Unit time =     5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.63             1.20                  0.76

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.63             2.99                  1.88

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.200(In)
Area Averaged 100-Year Rainfall =    2.990(In)

Point rain (area averaged) =    2.990(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.990(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     0.630           32.00          0.200
 Total Area Entered =      0.63(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
32.0  32.0      0.742     0.200        0.608        1.000      0.608
```

Sum (F) = 0.608

Area averaged mean soil loss (F) (In/Hr) = 0.608
Minimum soil loss rate ((In/Hr)) = 0.304
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	1612.406	100.000	0.635
		Sum = 100.000	Sum= 0.635

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.179	(0.608)	0.161	0.018
2	0.17	0.60	0.215	(0.608)	0.194	0.022
3	0.25	0.60	0.215	(0.608)	0.194	0.022
4	0.33	0.60	0.215	(0.608)	0.194	0.022
5	0.42	0.60	0.215	(0.608)	0.194	0.022
6	0.50	0.70	0.251	(0.608)	0.226	0.025
7	0.58	0.70	0.251	(0.608)	0.226	0.025
8	0.67	0.70	0.251	(0.608)	0.226	0.025
9	0.75	0.70	0.251	(0.608)	0.226	0.025
10	0.83	0.70	0.251	(0.608)	0.226	0.025
11	0.92	0.70	0.251	(0.608)	0.226	0.025
12	1.00	0.80	0.287	(0.608)	0.258	0.029
13	1.08	0.80	0.287	(0.608)	0.258	0.029

14	1.17	0.80	0.287	(0.608)	0.258	0.029
15	1.25	0.80	0.287	(0.608)	0.258	0.029
16	1.33	0.80	0.287	(0.608)	0.258	0.029
17	1.42	0.80	0.287	(0.608)	0.258	0.029
18	1.50	0.80	0.287	(0.608)	0.258	0.029
19	1.58	0.80	0.287	(0.608)	0.258	0.029
20	1.67	0.80	0.287	(0.608)	0.258	0.029
21	1.75	0.80	0.287	(0.608)	0.258	0.029
22	1.83	0.80	0.287	(0.608)	0.258	0.029
23	1.92	0.80	0.287	(0.608)	0.258	0.029
24	2.00	0.90	0.323	(0.608)	0.291	0.032
25	2.08	0.80	0.287	(0.608)	0.258	0.029
26	2.17	0.90	0.323	(0.608)	0.291	0.032
27	2.25	0.90	0.323	(0.608)	0.291	0.032
28	2.33	0.90	0.323	(0.608)	0.291	0.032
29	2.42	0.90	0.323	(0.608)	0.291	0.032
30	2.50	0.90	0.323	(0.608)	0.291	0.032
31	2.58	0.90	0.323	(0.608)	0.291	0.032
32	2.67	0.90	0.323	(0.608)	0.291	0.032
33	2.75	1.00	0.359	(0.608)	0.323	0.036
34	2.83	1.00	0.359	(0.608)	0.323	0.036
35	2.92	1.00	0.359	(0.608)	0.323	0.036
36	3.00	1.00	0.359	(0.608)	0.323	0.036
37	3.08	1.00	0.359	(0.608)	0.323	0.036
38	3.17	1.10	0.395	(0.608)	0.355	0.039
39	3.25	1.10	0.395	(0.608)	0.355	0.039
40	3.33	1.10	0.395	(0.608)	0.355	0.039
41	3.42	1.20	0.431	(0.608)	0.388	0.043
42	3.50	1.30	0.466	(0.608)	0.420	0.047
43	3.58	1.40	0.502	(0.608)	0.452	0.050
44	3.67	1.40	0.502	(0.608)	0.452	0.050
45	3.75	1.50	0.538	(0.608)	0.484	0.054
46	3.83	1.50	0.538	(0.608)	0.484	0.054
47	3.92	1.60	0.574	(0.608)	0.517	0.057
48	4.00	1.60	0.574	(0.608)	0.517	0.057
49	4.08	1.70	0.610	(0.608)	0.549	0.061
50	4.17	1.80	0.646	(0.608)	0.581	0.065
51	4.25	1.90	0.682	0.608	(0.614)	0.073

52	4.33	2.00	0.718		0.608	(0.646)	0.109
53	4.42	2.10	0.753		0.608	(0.678)	0.145
54	4.50	2.10	0.753		0.608	(0.678)	0.145
55	4.58	2.20	0.789		0.608	(0.710)	0.181
56	4.67	2.30	0.825		0.608	(0.743)	0.217
57	4.75	2.40	0.861		0.608	(0.775)	0.253
58	4.83	2.40	0.861		0.608	(0.775)	0.253
59	4.92	2.50	0.897		0.608	(0.807)	0.289
60	5.00	2.60	0.933		0.608	(0.840)	0.324
61	5.08	3.10	1.112		0.608	(1.001)	0.504
62	5.17	3.60	1.292		0.608	(1.163)	0.683
63	5.25	3.90	1.399		0.608	(1.259)	0.791
64	5.33	4.20	1.507		0.608	(1.356)	0.899
65	5.42	4.70	1.686		0.608	(1.518)	1.078
66	5.50	5.60	2.009		0.608	(1.808)	1.401
67	5.58	1.90	0.682		0.608	(0.614)	0.073
68	5.67	0.90	0.323	(	0.608)	0.291	0.032
69	5.75	0.60	0.215	(	0.608)	0.194	0.022
70	5.83	0.50	0.179	(	0.608)	0.161	0.018
71	5.92	0.30	0.108	(	0.608)	0.097	0.011
72	6.00	0.20	0.072	(	0.608)	0.065	0.007

(Loss Rate Not Used)

Sum = 100.0 Sum = 9.2

Flood volume = Effective rainfall 0.77(In)
times area 0.6(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)

Total soil loss = 2.22(In)

Total soil loss = 0.117(Ac.Ft)

Total rainfall = 2.99(In)

Flood volume = 1758.8 Cubic Feet

Total soil loss = 5079.0 Cubic Feet

Peak flow rate of this hydrograph = 0.890(CFS)

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6 - H O U R S T O R M

R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0001	0.01	Q				
0+10	0.0002	0.01	Q				
0+15	0.0003	0.01	Q				
0+20	0.0004	0.01	Q				
0+25	0.0005	0.01	Q				
0+30	0.0006	0.02	Q				
0+35	0.0007	0.02	Q				
0+40	0.0008	0.02	Q				
0+45	0.0009	0.02	Q				
0+50	0.0010	0.02	Q				
0+55	0.0011	0.02	QV				
1+ 0	0.0012	0.02	QV				
1+ 5	0.0014	0.02	QV				
1+10	0.0015	0.02	QV				
1+15	0.0016	0.02	QV				
1+20	0.0017	0.02	QV				
1+25	0.0019	0.02	QV				
1+30	0.0020	0.02	QV				
1+35	0.0021	0.02	Q V				
1+40	0.0022	0.02	Q V				
1+45	0.0024	0.02	Q V				
1+50	0.0025	0.02	Q V				
1+55	0.0026	0.02	Q V				
2+ 0	0.0028	0.02	Q V				
2+ 5	0.0029	0.02	Q V				
2+10	0.0030	0.02	Q V				
2+15	0.0032	0.02	Q V				
2+20	0.0033	0.02	Q V				
2+25	0.0035	0.02	Q V				
2+30	0.0036	0.02	Q V				
2+35	0.0037						

U n i t H y d r o g r a p h A n a l y s i s

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Study date 01/03/23 File: VOLT1024100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 10- 100 YR, 24-hr

Drainage Area = 0.63(Ac.) = 0.001 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 0.63(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 80.00(Ft.)
Length along longest watercourse measured to centroid = 40.00(Ft.)
Length along longest watercourse = 0.015 Mi.
Length along longest watercourse measured to centroid = 0.008 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 66.0000 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.005 Hr.
Lag time =     0.31 Min.
25% of lag time =     0.08 Min.
40% of lag time =     0.12 Min.
Unit time =     5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.63             2.06                  1.30

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.63             5.39                  3.40

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    2.060(In)
Area Averaged 100-Year Rainfall =    5.390(In)

Point rain (area averaged) =    5.390(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    5.390(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     0.630           32.00         0.200
 Total Area Entered =      0.63(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
32.0  32.0      0.742     0.200        0.608       1.000      0.608
```

Sum (F) = 0.608

Area averaged mean soil loss (F) (In/Hr) = 0.608
Minimum soil loss rate ((In/Hr)) = 0.304
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	100.000	0.635
	Sum =	100.000 Sum=	0.635

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.043	(1.079)	0.039	0.004
2	0.17	0.07	0.043	(1.074)	0.039	0.004
3	0.25	0.07	0.043	(1.070)	0.039	0.004
4	0.33	0.10	0.065	(1.066)	0.058	0.006
5	0.42	0.10	0.065	(1.062)	0.058	0.006
6	0.50	0.10	0.065	(1.058)	0.058	0.006
7	0.58	0.10	0.065	(1.054)	0.058	0.006
8	0.67	0.10	0.065	(1.050)	0.058	0.006
9	0.75	0.10	0.065	(1.045)	0.058	0.006
10	0.83	0.13	0.086	(1.041)	0.078	0.009
11	0.92	0.13	0.086	(1.037)	0.078	0.009
12	1.00	0.13	0.086	(1.033)	0.078	0.009
13	1.08	0.10	0.065	(1.029)	0.058	0.006

14	1.17	0.10	0.065	(1.025)	0.058	0.006
15	1.25	0.10	0.065	(1.021)	0.058	0.006
16	1.33	0.10	0.065	(1.017)	0.058	0.006
17	1.42	0.10	0.065	(1.013)	0.058	0.006
18	1.50	0.10	0.065	(1.009)	0.058	0.006
19	1.58	0.10	0.065	(1.005)	0.058	0.006
20	1.67	0.10	0.065	(1.001)	0.058	0.006
21	1.75	0.10	0.065	(0.997)	0.058	0.006
22	1.83	0.13	0.086	(0.993)	0.078	0.009
23	1.92	0.13	0.086	(0.989)	0.078	0.009
24	2.00	0.13	0.086	(0.985)	0.078	0.009
25	2.08	0.13	0.086	(0.981)	0.078	0.009
26	2.17	0.13	0.086	(0.977)	0.078	0.009
27	2.25	0.13	0.086	(0.973)	0.078	0.009
28	2.33	0.13	0.086	(0.969)	0.078	0.009
29	2.42	0.13	0.086	(0.965)	0.078	0.009
30	2.50	0.13	0.086	(0.961)	0.078	0.009
31	2.58	0.17	0.108	(0.957)	0.097	0.011
32	2.67	0.17	0.108	(0.953)	0.097	0.011
33	2.75	0.17	0.108	(0.949)	0.097	0.011
34	2.83	0.17	0.108	(0.945)	0.097	0.011
35	2.92	0.17	0.108	(0.941)	0.097	0.011
36	3.00	0.17	0.108	(0.937)	0.097	0.011
37	3.08	0.17	0.108	(0.934)	0.097	0.011
38	3.17	0.17	0.108	(0.930)	0.097	0.011
39	3.25	0.17	0.108	(0.926)	0.097	0.011
40	3.33	0.17	0.108	(0.922)	0.097	0.011
41	3.42	0.17	0.108	(0.918)	0.097	0.011
42	3.50	0.17	0.108	(0.914)	0.097	0.011
43	3.58	0.17	0.108	(0.910)	0.097	0.011
44	3.67	0.17	0.108	(0.907)	0.097	0.011
45	3.75	0.17	0.108	(0.903)	0.097	0.011
46	3.83	0.20	0.129	(0.899)	0.116	0.013
47	3.92	0.20	0.129	(0.895)	0.116	0.013
48	4.00	0.20	0.129	(0.891)	0.116	0.013
49	4.08	0.20	0.129	(0.888)	0.116	0.013
50	4.17	0.20	0.129	(0.884)	0.116	0.013
51	4.25	0.20	0.129	(0.880)	0.116	0.013

52	4.33	0.23	0.151	(0.876)	0.136	0.015
53	4.42	0.23	0.151	(0.873)	0.136	0.015
54	4.50	0.23	0.151	(0.869)	0.136	0.015
55	4.58	0.23	0.151	(0.865)	0.136	0.015
56	4.67	0.23	0.151	(0.861)	0.136	0.015
57	4.75	0.23	0.151	(0.858)	0.136	0.015
58	4.83	0.27	0.172	(0.854)	0.155	0.017
59	4.92	0.27	0.172	(0.850)	0.155	0.017
60	5.00	0.27	0.172	(0.847)	0.155	0.017
61	5.08	0.20	0.129	(0.843)	0.116	0.013
62	5.17	0.20	0.129	(0.839)	0.116	0.013
63	5.25	0.20	0.129	(0.836)	0.116	0.013
64	5.33	0.23	0.151	(0.832)	0.136	0.015
65	5.42	0.23	0.151	(0.828)	0.136	0.015
66	5.50	0.23	0.151	(0.825)	0.136	0.015
67	5.58	0.27	0.172	(0.821)	0.155	0.017
68	5.67	0.27	0.172	(0.817)	0.155	0.017
69	5.75	0.27	0.172	(0.814)	0.155	0.017
70	5.83	0.27	0.172	(0.810)	0.155	0.017
71	5.92	0.27	0.172	(0.807)	0.155	0.017
72	6.00	0.27	0.172	(0.803)	0.155	0.017
73	6.08	0.30	0.194	(0.800)	0.175	0.019
74	6.17	0.30	0.194	(0.796)	0.175	0.019
75	6.25	0.30	0.194	(0.792)	0.175	0.019
76	6.33	0.30	0.194	(0.789)	0.175	0.019
77	6.42	0.30	0.194	(0.785)	0.175	0.019
78	6.50	0.30	0.194	(0.782)	0.175	0.019
79	6.58	0.33	0.216	(0.778)	0.194	0.022
80	6.67	0.33	0.216	(0.775)	0.194	0.022
81	6.75	0.33	0.216	(0.771)	0.194	0.022
82	6.83	0.33	0.216	(0.768)	0.194	0.022
83	6.92	0.33	0.216	(0.764)	0.194	0.022
84	7.00	0.33	0.216	(0.761)	0.194	0.022
85	7.08	0.33	0.216	(0.757)	0.194	0.022
86	7.17	0.33	0.216	(0.754)	0.194	0.022
87	7.25	0.33	0.216	(0.751)	0.194	0.022
88	7.33	0.37	0.237	(0.747)	0.213	0.024
89	7.42	0.37	0.237	(0.744)	0.213	0.024

90	7.50	0.37	0.237	(0.740)	0.213	0.024
91	7.58	0.40	0.259	(0.737)	0.233	0.026
92	7.67	0.40	0.259	(0.734)	0.233	0.026
93	7.75	0.40	0.259	(0.730)	0.233	0.026
94	7.83	0.43	0.280	(0.727)	0.252	0.028
95	7.92	0.43	0.280	(0.723)	0.252	0.028
96	8.00	0.43	0.280	(0.720)	0.252	0.028
97	8.08	0.50	0.323	(0.717)	0.291	0.032
98	8.17	0.50	0.323	(0.713)	0.291	0.032
99	8.25	0.50	0.323	(0.710)	0.291	0.032
100	8.33	0.50	0.323	(0.707)	0.291	0.032
101	8.42	0.50	0.323	(0.703)	0.291	0.032
102	8.50	0.50	0.323	(0.700)	0.291	0.032
103	8.58	0.53	0.345	(0.697)	0.310	0.034
104	8.67	0.53	0.345	(0.694)	0.310	0.034
105	8.75	0.53	0.345	(0.690)	0.310	0.034
106	8.83	0.57	0.367	(0.687)	0.330	0.037
107	8.92	0.57	0.367	(0.684)	0.330	0.037
108	9.00	0.57	0.367	(0.681)	0.330	0.037
109	9.08	0.63	0.410	(0.677)	0.369	0.041
110	9.17	0.63	0.410	(0.674)	0.369	0.041
111	9.25	0.63	0.410	(0.671)	0.369	0.041
112	9.33	0.67	0.431	(0.668)	0.388	0.043
113	9.42	0.67	0.431	(0.665)	0.388	0.043
114	9.50	0.67	0.431	(0.661)	0.388	0.043
115	9.58	0.70	0.453	(0.658)	0.407	0.045
116	9.67	0.70	0.453	(0.655)	0.407	0.045
117	9.75	0.70	0.453	(0.652)	0.407	0.045
118	9.83	0.73	0.474	(0.649)	0.427	0.047
119	9.92	0.73	0.474	(0.646)	0.427	0.047
120	10.00	0.73	0.474	(0.643)	0.427	0.047
121	10.08	0.50	0.323	(0.639)	0.291	0.032
122	10.17	0.50	0.323	(0.636)	0.291	0.032
123	10.25	0.50	0.323	(0.633)	0.291	0.032
124	10.33	0.50	0.323	(0.630)	0.291	0.032
125	10.42	0.50	0.323	(0.627)	0.291	0.032
126	10.50	0.50	0.323	(0.624)	0.291	0.032
127	10.58	0.67	0.431	(0.621)	0.388	0.043

128	10.67	0.67	0.431	(0.618)	0.388	0.043
129	10.75	0.67	0.431	(0.615)	0.388	0.043
130	10.83	0.67	0.431	(0.612)	0.388	0.043
131	10.92	0.67	0.431	(0.609)	0.388	0.043
132	11.00	0.67	0.431	(0.606)	0.388	0.043
133	11.08	0.63	0.410	(0.603)	0.369	0.041
134	11.17	0.63	0.410	(0.600)	0.369	0.041
135	11.25	0.63	0.410	(0.597)	0.369	0.041
136	11.33	0.63	0.410	(0.594)	0.369	0.041
137	11.42	0.63	0.410	(0.591)	0.369	0.041
138	11.50	0.63	0.410	(0.588)	0.369	0.041
139	11.58	0.57	0.367	(0.585)	0.330	0.037
140	11.67	0.57	0.367	(0.582)	0.330	0.037
141	11.75	0.57	0.367	(0.579)	0.330	0.037
142	11.83	0.60	0.388	(0.577)	0.349	0.039
143	11.92	0.60	0.388	(0.574)	0.349	0.039
144	12.00	0.60	0.388	(0.571)	0.349	0.039
145	12.08	0.83	0.539	(0.568)	0.485	0.054
146	12.17	0.83	0.539	(0.565)	0.485	0.054
147	12.25	0.83	0.539	(0.562)	0.485	0.054
148	12.33	0.87	0.561	(0.559)	0.505	0.056
149	12.42	0.87	0.561	(0.557)	0.505	0.056
150	12.50	0.87	0.561	(0.554)	0.505	0.056
151	12.58	0.93	0.604	(0.551)	0.543	0.060
152	12.67	0.93	0.604	(0.548)	0.543	0.060
153	12.75	0.93	0.604	(0.546)	0.543	0.060
154	12.83	0.97	0.625	0.543	(0.563)	0.082
155	12.92	0.97	0.625	0.540	(0.563)	0.085
156	13.00	0.97	0.625	0.537	(0.563)	0.088
157	13.08	1.13	0.733	0.535	(0.660)	0.198
158	13.17	1.13	0.733	0.532	(0.660)	0.201
159	13.25	1.13	0.733	0.529	(0.660)	0.204
160	13.33	1.13	0.733	0.526	(0.660)	0.207
161	13.42	1.13	0.733	0.524	(0.660)	0.209
162	13.50	1.13	0.733	0.521	(0.660)	0.212
163	13.58	0.77	0.496	(0.518)	0.446	0.050
164	13.67	0.77	0.496	(0.516)	0.446	0.050
165	13.75	0.77	0.496	(0.513)	0.446	0.050

166	13.83	0.77	0.496	(0.511)	0.446	0.050
167	13.92	0.77	0.496	(0.508)	0.446	0.050
168	14.00	0.77	0.496	(0.505)	0.446	0.050
169	14.08	0.90	0.582	0.503	(0.524)	0.079
170	14.17	0.90	0.582	0.500	(0.524)	0.082
171	14.25	0.90	0.582	0.498	(0.524)	0.084
172	14.33	0.87	0.561	0.495	(0.505)	0.065
173	14.42	0.87	0.561	0.493	(0.505)	0.068
174	14.50	0.87	0.561	0.490	(0.505)	0.070
175	14.58	0.87	0.561	0.488	(0.505)	0.073
176	14.67	0.87	0.561	0.485	(0.505)	0.075
177	14.75	0.87	0.561	0.483	(0.505)	0.078
178	14.83	0.83	0.539	0.480	(0.485)	0.059
179	14.92	0.83	0.539	0.478	(0.485)	0.061
180	15.00	0.83	0.539	0.475	(0.485)	0.064
181	15.08	0.80	0.517	(0.473)	0.466	0.052
182	15.17	0.80	0.517	(0.470)	0.466	0.052
183	15.25	0.80	0.517	(0.468)	0.466	0.052
184	15.33	0.77	0.496	(0.466)	0.446	0.050
185	15.42	0.77	0.496	(0.463)	0.446	0.050
186	15.50	0.77	0.496	(0.461)	0.446	0.050
187	15.58	0.63	0.410	(0.458)	0.369	0.041
188	15.67	0.63	0.410	(0.456)	0.369	0.041
189	15.75	0.63	0.410	(0.454)	0.369	0.041
190	15.83	0.63	0.410	(0.451)	0.369	0.041
191	15.92	0.63	0.410	(0.449)	0.369	0.041
192	16.00	0.63	0.410	(0.447)	0.369	0.041
193	16.08	0.13	0.086	(0.445)	0.078	0.009
194	16.17	0.13	0.086	(0.442)	0.078	0.009
195	16.25	0.13	0.086	(0.440)	0.078	0.009
196	16.33	0.13	0.086	(0.438)	0.078	0.009
197	16.42	0.13	0.086	(0.436)	0.078	0.009
198	16.50	0.13	0.086	(0.433)	0.078	0.009
199	16.58	0.10	0.065	(0.431)	0.058	0.006
200	16.67	0.10	0.065	(0.429)	0.058	0.006
201	16.75	0.10	0.065	(0.427)	0.058	0.006
202	16.83	0.10	0.065	(0.425)	0.058	0.006
203	16.92	0.10	0.065	(0.422)	0.058	0.006

204	17.00	0.10	0.065	(0.420)	0.058	0.006
205	17.08	0.17	0.108	(0.418)	0.097	0.011
206	17.17	0.17	0.108	(0.416)	0.097	0.011
207	17.25	0.17	0.108	(0.414)	0.097	0.011
208	17.33	0.17	0.108	(0.412)	0.097	0.011
209	17.42	0.17	0.108	(0.410)	0.097	0.011
210	17.50	0.17	0.108	(0.408)	0.097	0.011
211	17.58	0.17	0.108	(0.406)	0.097	0.011
212	17.67	0.17	0.108	(0.404)	0.097	0.011
213	17.75	0.17	0.108	(0.402)	0.097	0.011
214	17.83	0.13	0.086	(0.400)	0.078	0.009
215	17.92	0.13	0.086	(0.398)	0.078	0.009
216	18.00	0.13	0.086	(0.396)	0.078	0.009
217	18.08	0.13	0.086	(0.394)	0.078	0.009
218	18.17	0.13	0.086	(0.392)	0.078	0.009
219	18.25	0.13	0.086	(0.390)	0.078	0.009
220	18.33	0.13	0.086	(0.388)	0.078	0.009
221	18.42	0.13	0.086	(0.386)	0.078	0.009
222	18.50	0.13	0.086	(0.384)	0.078	0.009
223	18.58	0.10	0.065	(0.382)	0.058	0.006
224	18.67	0.10	0.065	(0.381)	0.058	0.006
225	18.75	0.10	0.065	(0.379)	0.058	0.006
226	18.83	0.07	0.043	(0.377)	0.039	0.004
227	18.92	0.07	0.043	(0.375)	0.039	0.004
228	19.00	0.07	0.043	(0.373)	0.039	0.004
229	19.08	0.10	0.065	(0.372)	0.058	0.006
230	19.17	0.10	0.065	(0.370)	0.058	0.006
231	19.25	0.10	0.065	(0.368)	0.058	0.006
232	19.33	0.13	0.086	(0.366)	0.078	0.009
233	19.42	0.13	0.086	(0.365)	0.078	0.009
234	19.50	0.13	0.086	(0.363)	0.078	0.009
235	19.58	0.10	0.065	(0.361)	0.058	0.006
236	19.67	0.10	0.065	(0.360)	0.058	0.006
237	19.75	0.10	0.065	(0.358)	0.058	0.006
238	19.83	0.07	0.043	(0.356)	0.039	0.004
239	19.92	0.07	0.043	(0.355)	0.039	0.004
240	20.00	0.07	0.043	(0.353)	0.039	0.004
241	20.08	0.10	0.065	(0.352)	0.058	0.006

242	20.17	0.10	0.065	(0.350)	0.058	0.006
243	20.25	0.10	0.065	(0.349)	0.058	0.006
244	20.33	0.10	0.065	(0.347)	0.058	0.006
245	20.42	0.10	0.065	(0.346)	0.058	0.006
246	20.50	0.10	0.065	(0.344)	0.058	0.006
247	20.58	0.10	0.065	(0.343)	0.058	0.006
248	20.67	0.10	0.065	(0.341)	0.058	0.006
249	20.75	0.10	0.065	(0.340)	0.058	0.006
250	20.83	0.07	0.043	(0.339)	0.039	0.004
251	20.92	0.07	0.043	(0.337)	0.039	0.004
252	21.00	0.07	0.043	(0.336)	0.039	0.004
253	21.08	0.10	0.065	(0.334)	0.058	0.006
254	21.17	0.10	0.065	(0.333)	0.058	0.006
255	21.25	0.10	0.065	(0.332)	0.058	0.006
256	21.33	0.07	0.043	(0.331)	0.039	0.004
257	21.42	0.07	0.043	(0.329)	0.039	0.004
258	21.50	0.07	0.043	(0.328)	0.039	0.004
259	21.58	0.10	0.065	(0.327)	0.058	0.006
260	21.67	0.10	0.065	(0.326)	0.058	0.006
261	21.75	0.10	0.065	(0.325)	0.058	0.006
262	21.83	0.07	0.043	(0.323)	0.039	0.004
263	21.92	0.07	0.043	(0.322)	0.039	0.004
264	22.00	0.07	0.043	(0.321)	0.039	0.004
265	22.08	0.10	0.065	(0.320)	0.058	0.006
266	22.17	0.10	0.065	(0.319)	0.058	0.006
267	22.25	0.10	0.065	(0.318)	0.058	0.006
268	22.33	0.07	0.043	(0.317)	0.039	0.004
269	22.42	0.07	0.043	(0.316)	0.039	0.004
270	22.50	0.07	0.043	(0.315)	0.039	0.004
271	22.58	0.07	0.043	(0.314)	0.039	0.004
272	22.67	0.07	0.043	(0.313)	0.039	0.004
273	22.75	0.07	0.043	(0.313)	0.039	0.004
274	22.83	0.07	0.043	(0.312)	0.039	0.004
275	22.92	0.07	0.043	(0.311)	0.039	0.004
276	23.00	0.07	0.043	(0.310)	0.039	0.004
277	23.08	0.07	0.043	(0.309)	0.039	0.004
278	23.17	0.07	0.043	(0.309)	0.039	0.004
279	23.25	0.07	0.043	(0.308)	0.039	0.004

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280  23.33     0.07      0.043       (  0.308)       0.039         0.004
281  23.42     0.07      0.043       (  0.307)       0.039         0.004
282  23.50     0.07      0.043       (  0.306)       0.039         0.004
283  23.58     0.07      0.043       (  0.306)       0.039         0.004
284  23.67     0.07      0.043       (  0.305)       0.039         0.004
285  23.75     0.07      0.043       (  0.305)       0.039         0.004
286  23.83     0.07      0.043       (  0.305)       0.039         0.004
287  23.92     0.07      0.043       (  0.304)       0.039         0.004
288  24.00     0.07      0.043       (  0.304)       0.039         0.004
           (Loss Rate Not Used)
    Sum =     100.0                                   Sum =     7.5
     Flood volume = Effective rainfall      0.63(In)
      times area       0.6(Ac.)/[(In)/(Ft.)] =       0.0(Ac.Ft)
     Total soil loss =      4.76(In)
     Total soil loss =     0.250(Ac.Ft)
     Total rainfall =      5.39(In)
     Flood volume =        1432.1 Cubic Feet
     Total soil loss =       10894.3 Cubic Feet
     ---------------------------------------------------------------------
      Peak flow rate of this hydrograph =      0.135(CFS)
     ---------------------------------------------------------------------
     +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                         24 - H O U R    S T O R M
                    R u n o f f      H y d r o g r a p h
     ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

     ---------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
 ---------------------------------------------------------------------
   0+ 5       0.0000      0.00  Q         |         |         |         |
   0+10       0.0000      0.00  Q         |         |         |         |
   0+15       0.0001      0.00  Q         |         |         |         |
   0+20       0.0001      0.00  Q         |         |         |         |
   0+25       0.0001      0.00  Q         |         |         |         |
   0+30       0.0001      0.00  Q         |         |         |         |
   0+35       0.0002      0.00  Q         |         |         |         |
   0+40       0.0002      0.00  Q         |         |         |         |
```

0+45	0.0002	0.00	Q	|	|	|	|
0+50	0.0003	0.01	Q	|	|	|	|
0+55	0.0003	0.01	Q	|	|	|	|
1+ 0	0.0003	0.01	Q	|	|	|	|
1+ 5	0.0004	0.00	Q	|	|	|	|
1+10	0.0004	0.00	Q	|	|	|	|
1+15	0.0004	0.00	Q	|	|	|	|
1+20	0.0005	0.00	Q	|	|	|	|
1+25	0.0005	0.00	Q	|	|	|	|
1+30	0.0005	0.00	Q	|	|	|	|
1+35	0.0005	0.00	Q	|	|	|	|
1+40	0.0006	0.00	Q	|	|	|	|
1+45	0.0006	0.00	Q	|	|	|	|
1+50	0.0006	0.01	Q	|	|	|	|
1+55	0.0007	0.01	Q	|	|	|	|
2+ 0	0.0007	0.01	Q	|	|	|	|
2+ 5	0.0007	0.01	Q	|	|	|	|
2+10	0.0008	0.01	Q	|	|	|	|
2+15	0.0008	0.01	Q	|	|	|	|
2+20	0.0009	0.01	QV	|	|	|	|
2+25	0.0009	0.01	QV	|	|	|	|
2+30	0.0009	0.01	QV	|	|	|	|
2+35	0.0010	0.01	QV	|	|	|	|
2+40	0.0010	0.01	QV	|	|	|	|
2+45	0.0011	0.01	QV	|	|	|	|
2+50	0.0011	0.01	QV	|	|	|	|
2+55	0.0012	0.01	QV	|	|	|	|
3+ 0	0.0012	0.01	QV	|	|	|	|
3+ 5	0.0013	0.01	QV	|	|	|	|
3+10	0.0013	0.01	QV	|	|	|	|
3+15	0.0014	0.01	QV	|	|	|	|
3+20	0.0014	0.01	QV	|	|	|	|
3+25	0.0015	0.01	QV	|	|	|	|
3+30	0.0015	0.01	QV	|	|	|	|
3+35	0.0015	0.01	QV	|	|	|	|
3+40	0.0016	0.01	QV	|	|	|	|
3+45	0.0016	0.01	QV	|	|	|	|
3+50	0.0017	0.01	Q V	|	|	|	|

3+55	0.0018	0.01	Q V	|	|	|	|
4+ 0	0.0018	0.01	Q V	|	|	|	|
4+ 5	0.0019	0.01	Q V	|	|	|	|
4+10	0.0019	0.01	Q V	|	|	|	|
4+15	0.0020	0.01	Q V	|	|	|	|
4+20	0.0020	0.01	Q V	|	|	|	|
4+25	0.0021	0.01	Q V	|	|	|	|
4+30	0.0022	0.01	Q V	|	|	|	|
4+35	0.0022	0.01	Q V	|	|	|	|
4+40	0.0023	0.01	Q V	|	|	|	|
4+45	0.0024	0.01	Q V	|	|	|	|
4+50	0.0025	0.01	Q V	|	|	|	|
4+55	0.0025	0.01	Q V	|	|	|	|
5+ 0	0.0026	0.01	Q V	|	|	|	|
5+ 5	0.0027	0.01	Q V	|	|	|	|
5+10	0.0027	0.01	Q V	|	|	|	|
5+15	0.0028	0.01	Q V	|	|	|	|
5+20	0.0028	0.01	Q V	|	|	|	|
5+25	0.0029	0.01	Q V	|	|	|	|
5+30	0.0030	0.01	Q V	|	|	|	|
5+35	0.0030	0.01	Q V	|	|	|	|
5+40	0.0031	0.01	Q V	|	|	|	|
5+45	0.0032	0.01	Q V	|	|	|	|
5+50	0.0033	0.01	Q V	|	|	|	|
5+55	0.0033	0.01	Q V	|	|	|	|
6+ 0	0.0034	0.01	Q V	|	|	|	|
6+ 5	0.0035	0.01	Q V	|	|	|	|
6+10	0.0036	0.01	Q V	|	|	|	|
6+15	0.0037	0.01	Q V	|	|	|	|
6+20	0.0038	0.01	Q V	|	|	|	|
6+25	0.0038	0.01	Q V	|	|	|	|
6+30	0.0039	0.01	Q V	|	|	|	|
6+35	0.0040	0.01	Q V	|	|	|	|
6+40	0.0041	0.01	Q V	|	|	|	|
6+45	0.0042	0.01	Q V	|	|	|	|
6+50	0.0043	0.01	Q V	|	|	|	|
6+55	0.0044	0.01	Q V	|	|	|	|
7+ 0	0.0045	0.01	Q V	|	|	|	|

7+ 5	0.0046	0.01	Q	V	|	|	|	|
7+10	0.0047	0.01	Q	V	|	|	|	|
7+15	0.0048	0.01	Q	V	|	|	|	|
7+20	0.0049	0.02	Q	V	|	|	|	|
7+25	0.0050	0.02	Q	V	|	|	|	|
7+30	0.0051	0.02	Q	V	|	|	|	|
7+35	0.0052	0.02	Q	V	|	|	|	|
7+40	0.0053	0.02	Q	V	|	|	|	|
7+45	0.0054	0.02	Q	V	|	|	|	|
7+50	0.0056	0.02	Q	V	|	|	|	|
7+55	0.0057	0.02	Q	V	|	|	|	|
8+ 0	0.0058	0.02	Q	V	|	|	|	|
8+ 5	0.0059	0.02	Q	V	|	|	|	|
8+10	0.0061	0.02	Q	V	|	|	|	|
8+15	0.0062	0.02	Q	V	|	|	|	|
8+20	0.0064	0.02	Q	V	|	|	|	|
8+25	0.0065	0.02	Q	V	|	|	|	|
8+30	0.0066	0.02	Q	V	|	|	|	|
8+35	0.0068	0.02	Q	V	|	|	|	|
8+40	0.0070	0.02	Q	V	|	|	|	|
8+45	0.0071	0.02	Q	V	|	|	|	|
8+50	0.0073	0.02	Q	V	|	|	|	|
8+55	0.0074	0.02	Q	V	|	|	|	|
9+ 0	0.0076	0.02	Q	V	|	|	|	|
9+ 5	0.0078	0.03	Q	V	|	|	|	|
9+10	0.0079	0.03	Q	V	|	|	|	|
9+15	0.0081	0.03	Q	V	|	|	|	|
9+20	0.0083	0.03	Q	V	|	|	|	|
9+25	0.0085	0.03	Q	V	|	|	|	|
9+30	0.0087	0.03	Q	V	|	|	|	|
9+35	0.0089	0.03	Q	V	|	|	|	|
9+40	0.0091	0.03	Q	|	V	|	|	|
9+45	0.0093	0.03	Q	|	V	|	|	|
9+50	0.0095	0.03	Q	|	V	|	|	|
9+55	0.0097	0.03	Q	|	V	|	|	|
10+ 0	0.0099	0.03	Q	|	|	V	|	|
10+ 5	0.0100	0.02	Q	|	|	V	|	|
10+10	0.0102	0.02	Q	|	|	V	|	|

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10+15       0.0103      0.02  Q          | V       |          |          |
10+20       0.0105      0.02  Q          | V       |          |          |
10+25       0.0106      0.02  Q          | V       |          |          |
10+30       0.0108      0.02  Q          |  V      |          |          |
10+35       0.0109      0.03  Q          |  V      |          |          |
10+40       0.0111      0.03  Q          |  V      |          |          |
10+45       0.0113      0.03  Q          |  V      |          |          |
10+50       0.0115      0.03  Q          |   V     |          |          |
10+55       0.0117      0.03  Q          |   V     |          |          |
11+ 0       0.0119      0.03  Q          |   V     |          |          |
11+ 5       0.0121      0.03  Q          |   V     |          |          |
11+10       0.0122      0.03  Q          |   V     |          |          |
11+15       0.0124      0.03  Q          |    V    |          |          |
11+20       0.0126      0.03  Q          |    V    |          |          |
11+25       0.0128      0.03  Q          |    V    |          |          |
11+30       0.0130      0.03  Q          |    V    |          |          |
11+35       0.0131      0.02  Q          |    V    |          |          |
11+40       0.0133      0.02  Q          |     V   |          |          |
11+45       0.0134      0.02  Q          |     V   |          |          |
11+50       0.0136      0.02  Q          |     V   |          |          |
11+55       0.0138      0.02  Q          |     V   |          |          |
12+ 0       0.0140      0.02  Q          |     V   |          |          |
12+ 5       0.0142      0.03  Q          |      V  |          |          |
12+10       0.0144      0.03  Q          |      V  |          |          |
12+15       0.0147      0.03  Q          |      V  |          |          |
12+20       0.0149      0.04  Q          |       V |          |          |
12+25       0.0151      0.04  Q          |       V |          |          |
12+30       0.0154      0.04  Q          |       V |          |          |
12+35       0.0157      0.04  Q          |        V|          |          |
12+40       0.0159      0.04  Q          |        V|          |          |
12+45       0.0162      0.04  Q          |        V|          |          |
12+50       0.0165      0.05  Q          |         V          |          |
12+55       0.0169      0.05  Q          |         V          |          |
13+ 0       0.0173      0.06  Q          |         |V         |          |
13+ 5       0.0182      0.13  Q          |         | V        |          |
13+10       0.0191      0.13  Q          |         |  V       |          |
13+15       0.0199      0.13  Q          |         |   V      |          |
13+20       0.0208      0.13  Q          |         |    V     |          |
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13+25       0.0218      0.13  Q          |          |      V   |          |
13+30       0.0227      0.13  Q          |          |       V  |          |
13+35       0.0229      0.03  Q          |          |       V  |          |
13+40       0.0231      0.03  Q          |          |        V |          |
13+45       0.0233      0.03  Q          |          |        V |          |
13+50       0.0236      0.03  Q          |          |        V |          |
13+55       0.0238      0.03  Q          |          |        V |          |
14+ 0       0.0240      0.03  Q          |          |         V|          |
14+ 5       0.0243      0.05  Q          |          |         V|          |
14+10       0.0247      0.05  Q          |          |          V          |
14+15       0.0251      0.05  Q          |          |          V          |
14+20       0.0254      0.04  Q          |          |          V          |
14+25       0.0257      0.04  Q          |          |          |V         |
14+30       0.0260      0.04  Q          |          |          |V         |
14+35       0.0263      0.05  Q          |          |          |V         |
14+40       0.0266      0.05  Q          |          |          | V        |
14+45       0.0269      0.05  Q          |          |          | V        |
14+50       0.0272      0.04  Q          |          |          |  V       |
14+55       0.0275      0.04  Q          |          |          |  V       |
15+ 0       0.0278      0.04  Q          |          |          |  V       |
15+ 5       0.0280      0.03  Q          |          |          |   V      |
15+10       0.0282      0.03  Q          |          |          |   V      |
15+15       0.0284      0.03  Q          |          |          |   V      |
15+20       0.0287      0.03  Q          |          |          |   V      |
15+25       0.0289      0.03  Q          |          |          |    V     |
15+30       0.0291      0.03  Q          |          |          |    V     |
15+35       0.0293      0.03  Q          |          |          |    V     |
15+40       0.0294      0.03  Q          |          |          |    V     |
15+45       0.0296      0.03  Q          |          |          |     V    |
15+50       0.0298      0.03  Q          |          |          |     V    |
15+55       0.0300      0.03  Q          |          |          |     V    |
16+ 0       0.0302      0.03  Q          |          |          |     V    |
16+ 5       0.0302      0.01  Q          |          |          |     V    |
16+10       0.0302      0.01  Q          |          |          |     V    |
16+15       0.0303      0.01  Q          |          |          |     V    |
16+20       0.0303      0.01  Q          |          |          |     V    |
16+25       0.0303      0.01  Q          |          |          |     V    |
16+30       0.0304      0.01  Q          |          |          |     V    |
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16+35	0.0304	0.00	Q	|	|	|	V |
16+40	0.0304	0.00	Q	|	|	|	V |
16+45	0.0305	0.00	Q	|	|	|	V |
16+50	0.0305	0.00	Q	|	|	|	V |
16+55	0.0305	0.00	Q	|	|	|	V |
17+ 0	0.0306	0.00	Q	|	|	|	V |
17+ 5	0.0306	0.01	Q	|	|	|	V |
17+10	0.0307	0.01	Q	|	|	|	V |
17+15	0.0307	0.01	Q	|	|	|	V |
17+20	0.0307	0.01	Q	|	|	|	V |
17+25	0.0308	0.01	Q	|	|	|	V |
17+30	0.0308	0.01	Q	|	|	|	V |
17+35	0.0309	0.01	Q	|	|	|	V |
17+40	0.0309	0.01	Q	|	|	|	V |
17+45	0.0310	0.01	Q	|	|	|	V |
17+50	0.0310	0.01	Q	|	|	|	V |
17+55	0.0311	0.01	Q	|	|	|	V |
18+ 0	0.0311	0.01	Q	|	|	|	V |
18+ 5	0.0311	0.01	Q	|	|	|	V |
18+10	0.0312	0.01	Q	|	|	|	V |
18+15	0.0312	0.01	Q	|	|	|	V |
18+20	0.0312	0.01	Q	|	|	|	V |
18+25	0.0313	0.01	Q	|	|	|	V |
18+30	0.0313	0.01	Q	|	|	|	V |
18+35	0.0313	0.00	Q	|	|	|	V |
18+40	0.0314	0.00	Q	|	|	|	V |
18+45	0.0314	0.00	Q	|	|	|	V |
18+50	0.0314	0.00	Q	|	|	|	V |
18+55	0.0314	0.00	Q	|	|	|	V |
19+ 0	0.0315	0.00	Q	|	|	|	V |
19+ 5	0.0315	0.00	Q	|	|	|	V |
19+10	0.0315	0.00	Q	|	|	|	V |
19+15	0.0315	0.00	Q	|	|	|	V |
19+20	0.0316	0.01	Q	|	|	|	V |
19+25	0.0316	0.01	Q	|	|	|	V |
19+30	0.0317	0.01	Q	|	|	|	V |
19+35	0.0317	0.00	Q	|	|	|	V |
19+40	0.0317	0.00	Q	|	|	|	V |

19+45	0.0317	0.00	Q	|	|	|	V |
19+50	0.0318	0.00	Q	|	|	|	V |
19+55	0.0318	0.00	Q	|	|	|	V |
20+ 0	0.0318	0.00	Q	|	|	|	V |
20+ 5	0.0318	0.00	Q	|	|	|	V |
20+10	0.0319	0.00	Q	|	|	|	V |
20+15	0.0319	0.00	Q	|	|	|	V |
20+20	0.0319	0.00	Q	|	|	|	V |
20+25	0.0319	0.00	Q	|	|	|	V |
20+30	0.0320	0.00	Q	|	|	|	V |
20+35	0.0320	0.00	Q	|	|	|	V |
20+40	0.0320	0.00	Q	|	|	|	V |
20+45	0.0321	0.00	Q	|	|	|	V|
20+50	0.0321	0.00	Q	|	|	|	V|
20+55	0.0321	0.00	Q	|	|	|	V|
21+ 0	0.0321	0.00	Q	|	|	|	V|
21+ 5	0.0321	0.00	Q	|	|	|	V|
21+10	0.0322	0.00	Q	|	|	|	V|
21+15	0.0322	0.00	Q	|	|	|	V|
21+20	0.0322	0.00	Q	|	|	|	V|
21+25	0.0322	0.00	Q	|	|	|	V|
21+30	0.0323	0.00	Q	|	|	|	V|
21+35	0.0323	0.00	Q	|	|	|	V|
21+40	0.0323	0.00	Q	|	|	|	V|
21+45	0.0323	0.00	Q	|	|	|	V|
21+50	0.0324	0.00	Q	|	|	|	V|
21+55	0.0324	0.00	Q	|	|	|	V|
22+ 0	0.0324	0.00	Q	|	|	|	V|
22+ 5	0.0324	0.00	Q	|	|	|	V|
22+10	0.0325	0.00	Q	|	|	|	V|
22+15	0.0325	0.00	Q	|	|	|	V|
22+20	0.0325	0.00	Q	|	|	|	V|
22+25	0.0325	0.00	Q	|	|	|	V|
22+30	0.0325	0.00	Q	|	|	|	V|
22+35	0.0326	0.00	Q	|	|	|	V|
22+40	0.0326	0.00	Q	|	|	|	V|
22+45	0.0326	0.00	Q	|	|	|	V|
22+50	0.0326	0.00	Q	|	|	|	V|

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   22+55       0.0326      0.00  Q          |          |          |         V|
   23+ 0       0.0326      0.00  Q          |          |          |         V|
   23+ 5       0.0327      0.00  Q          |          |          |         V|
   23+10       0.0327      0.00  Q          |          |          |         V|
   23+15       0.0327      0.00  Q          |          |          |         V|
   23+20       0.0327      0.00  Q          |          |          |         V|
   23+25       0.0327      0.00  Q          |          |          |         V|
   23+30       0.0328      0.00  Q          |          |          |         V|
   23+35       0.0328      0.00  Q          |          |          |         V|
   23+40       0.0328      0.00  Q          |          |          |         V|
   23+45       0.0328      0.00  Q          |          |          |         V|
   23+50       0.0328      0.00  Q          |          |          |         V|
   23+55       0.0329      0.00  Q          |          |          |         V|
   24+ 0       0.0329      0.00  Q          |          |          |         V|
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U n i t H y d r o g r a p h A n a l y s i s

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Study date 01/03/23 File: VOLT111100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 11- 100 YR, 1-hr

Drainage Area = 1.24(Ac.) = 0.002 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.24(Ac.) = 0.002 Sq. Mi.
Length along longest watercourse = 180.00(Ft.)
Length along longest watercourse measured to centroid = 90.00(Ft.)
Length along longest watercourse = 0.034 Mi.
Length along longest watercourse measured to centroid = 0.017 Mi.
Difference in elevation = 1.37(Ft.)
Slope along watercourse = 40.1867 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.011 Hr.
Lag time =     0.63 Min.
25% of lag time =     0.16 Min.
40% of lag time =     0.25 Min.
Unit time =     5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.24              0.51                  0.64

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.24              1.61                  2.00

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.514(In)
Area Averaged 100-Year Rainfall =    1.610(In)

Point rain (area averaged) =    1.610(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    1.610(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     1.240           69.00          0.200
 Total Area Entered =      1.24(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306       1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

Slope of intensity-duration curve for a 1 hour storm =0.5500

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	792.279	80.994	1.012
2	0.167	1584.557	19.006	0.238
		Sum = 100.000	Sum=	1.250

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	3.30	0.638	0.306	(0.574)	0.332
2	0.17	4.20	0.811	0.306	(0.730)	0.506
3	0.25	4.40	0.850	0.306	(0.765)	0.544
4	0.33	4.80	0.927	0.306	(0.835)	0.622
5	0.42	5.20	1.005	0.306	(0.904)	0.699
6	0.50	6.20	1.198	0.306	(1.078)	0.892
7	0.58	6.80	1.314	0.306	(1.182)	1.008
8	0.67	8.80	1.700	0.306	(1.530)	1.394
9	0.75	13.90	2.685	0.306	(2.417)	2.380
10	0.83	31.40	6.066	0.306	(5.460)	5.761

```
 11   0.92     7.20      1.391          0.306    (  1.252)         1.085
 12   1.00     3.80      0.734          0.306    (  0.661)         0.428
           (Loss Rate Not Used)
    Sum =     100.0                                    Sum =    15.7
     Flood volume = Effective rainfall      1.30(In)
      times area       1.2(Ac.)/[(In)/(Ft.)] =       0.1(Ac.Ft)
     Total soil loss =      0.31(In)
     Total soil loss =     0.032(Ac.Ft)
     Total rainfall =      1.61(In)
     Flood volume =        5870.9 Cubic Feet
     Total soil loss =        1376.0 Cubic Feet
     ---------------------------------------------------------------------
      Peak flow rate of this hydrograph =      6.399(CFS)
     ---------------------------------------------------------------------
     +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                         1 - H O U R    S T O R M
                    R u n o f f     H y d r o g r a p h
     ---------------------------------------------------------------------
                 Hydrograph in   5   Minute intervals ((CFS))

     ---------------------------------------------------------------------
  Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
  ------------------------------------------------------------------------
    0+ 5       0.0023      0.34  VQ        |         |         |         |
    0+10       0.0064      0.59  |VQ       |         |         |         |
    0+15       0.0110      0.67  | QV      |         |         |         |
    0+20       0.0162      0.76  |  QV     |         |         |         |
    0+25       0.0221      0.86  |  Q  V   |         |         |         |
    0+30       0.0295      1.07  |   Q   V |         |         |         |
    0+35       0.0380      1.23  |   Q     |V        |         |         |
    0+40       0.0494      1.65  |     Q   |   V     |         |         |
    0+45       0.0682      2.74  |         Q         V         |         |
    0+50       0.1123      6.40  |         |         |    Q    |  V      |
    0+55       0.1293      2.47  |        Q|         |         |       V |
    1+ 0       0.1341      0.69  | Q       |         |         |        V|
    1+ 5       0.1348      0.10  Q         |         |         |         V
-------------------------------------------------------------------------
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U n i t H y d r o g r a p h A n a l y s i s

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Study date 01/03/23 File: VOLT113100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 11- 100 YR, 3-hr

Drainage Area = 1.24(Ac.) = 0.002 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.24(Ac.) = 0.002 Sq. Mi.
Length along longest watercourse = 180.00(Ft.)
Length along longest watercourse measured to centroid = 90.00(Ft.)
Length along longest watercourse = 0.034 Mi.
Length along longest watercourse measured to centroid = 0.017 Mi.
Difference in elevation = 1.37(Ft.)
Slope along watercourse = 40.1867 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.011 Hr.
Lag time =     0.63 Min.
25% of lag time =     0.16 Min.
40% of lag time =     0.25 Min.
Unit time =     5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.24              0.86                  1.07

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.24              2.25                  2.79

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.864(In)
Area Averaged 100-Year Rainfall =    2.250(In)

Point rain (area averaged) =    2.250(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.250(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     1.240           69.00          0.200
 Total Area Entered =      1.24(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306       1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	792.279	80.994	1.012
2	0.167	1584.557	19.006	0.238
			Sum = 100.000 Sum=	1.250

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max		Low	Effective (In/Hr)
1	0.08	1.30	0.351	0.306		(0.316)	0.045
2	0.17	1.30	0.351	0.306		(0.316)	0.045
3	0.25	1.10	0.297	(0.306)		0.267	0.030
4	0.33	1.50	0.405	0.306		(0.364)	0.099
5	0.42	1.50	0.405	0.306		(0.364)	0.099
6	0.50	1.80	0.486	0.306		(0.437)	0.180
7	0.58	1.50	0.405	0.306		(0.364)	0.099
8	0.67	1.80	0.486	0.306		(0.437)	0.180
9	0.75	1.80	0.486	0.306		(0.437)	0.180
10	0.83	1.50	0.405	0.306		(0.364)	0.099
11	0.92	1.60	0.432	0.306		(0.389)	0.126
12	1.00	1.80	0.486	0.306		(0.437)	0.180

```
13   1.08     2.20      0.594          0.306    (  0.535)         0.288
14   1.17     2.20      0.594          0.306    (  0.535)         0.288
15   1.25     2.20      0.594          0.306    (  0.535)         0.288
16   1.33     2.00      0.540          0.306    (  0.486)         0.234
17   1.42     2.60      0.702          0.306    (  0.632)         0.396
18   1.50     2.70      0.729          0.306    (  0.656)         0.423
19   1.58     2.40      0.648          0.306    (  0.583)         0.342
20   1.67     2.70      0.729          0.306    (  0.656)         0.423
21   1.75     3.30      0.891          0.306    (  0.802)         0.585
22   1.83     3.10      0.837          0.306    (  0.753)         0.531
23   1.92     2.90      0.783          0.306    (  0.705)         0.477
24   2.00     3.00      0.810          0.306    (  0.729)         0.504
25   2.08     3.10      0.837          0.306    (  0.753)         0.531
26   2.17     4.20      1.134          0.306    (  1.021)         0.828
27   2.25     5.00      1.350          0.306    (  1.215)         1.044
28   2.33     3.50      0.945          0.306    (  0.850)         0.639
29   2.42     6.80      1.836          0.306    (  1.652)         1.530
30   2.50     7.30      1.971          0.306    (  1.774)         1.665
31   2.58     8.20      2.214          0.306    (  1.993)         1.908
32   2.67     5.90      1.593          0.306    (  1.434)         1.287
33   2.75     2.00      0.540          0.306    (  0.486)         0.234
34   2.83     1.80      0.486          0.306    (  0.437)         0.180
35   2.92     1.80      0.486          0.306    (  0.437)         0.180
36   3.00     0.60      0.162       (  0.306)       0.146         0.016
          (Loss Rate Not Used)
   Sum =     100.0                                    Sum =    16.2
    Flood volume = Effective rainfall      1.35(In)
     times area       1.2(Ac.)/[(In)/(Ft.)] =       0.1(Ac.Ft)
    Total soil loss =      0.90(In)
    Total soil loss =     0.093(Ac.Ft)
    Total rainfall =      2.25(In)
    Flood volume =        6074.0 Cubic Feet
    Total soil loss =        4053.6 Cubic Feet
    ---------------------------------------------------------------------
     Peak flow rate of this hydrograph =      2.328(CFS)
    ---------------------------------------------------------------------
    +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        3 - H O U R    S T O R M
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R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0003	0.05	Q				
0+10	0.0007	0.06	Q				
0+15	0.0010	0.04	Q				
0+20	0.0017	0.11	Q				
0+25	0.0026	0.12	Q				
0+30	0.0040	0.21	QV				
0+35	0.0050	0.14	QV				
0+40	0.0064	0.21	QV				
0+45	0.0080	0.23	Q V				
0+50	0.0090	0.14	Q V				
0+55	0.0100	0.15	Q V				
1+ 0	0.0115	0.21	Q V				
1+ 5	0.0138	0.33	Q V				
1+10	0.0162	0.36	Q V				
1+15	0.0187	0.36	Q V				
1+20	0.0208	0.31	Q V				
1+25	0.0240	0.46	Q V				
1+30	0.0276	0.52	Q V				
1+35	0.0307	0.45	Q V				
1+40	0.0342	0.51	Q V				
1+45	0.0390	0.69	Q V				
1+50	0.0436	0.68	Q V				
1+55	0.0478	0.61	Q V				
2+ 0	0.0521	0.62	Q V				
2+ 5	0.0566	0.66	Q V				
2+10	0.0633	0.97	Q V				
2+15	0.0719	1.25	Q V				
2+20	0.0781	0.90	Q V				
2+25	0.0898	1.70	Q V				
2+30	0.1039	2.05	Q V				
2+35	0.1200	2.33	Q V				

```
    2+40       0.1321      1.76  |      Q  |         |         |      V  |
    2+45       0.1358      0.54  | Q       |         |         |       V |
    2+50       0.1375      0.24  Q         |         |         |         V|
    2+55       0.1390      0.23  Q         |         |         |         V|
    3+ 0       0.1394      0.06  Q         |         |         |         V|
    3+ 5       0.1394      0.00  Q         |         |         |          V
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U n i t H y d r o g r a p h A n a l y s i s

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Study date 01/03/23 File: VOLT116100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 11- 100 YR, 6-hr

Drainage Area = 1.24(Ac.) = 0.002 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.24(Ac.) = 0.002 Sq. Mi.
Length along longest watercourse = 180.00(Ft.)
Length along longest watercourse measured to centroid = 90.00(Ft.)
Length along longest watercourse = 0.034 Mi.
Length along longest watercourse measured to centroid = 0.017 Mi.
Difference in elevation = 1.37(Ft.)
Slope along watercourse = 40.1867 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.011 Hr.
Lag time =     0.63 Min.
25% of lag time =     0.16 Min.
40% of lag time =     0.25 Min.
Unit time =     5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.24             1.20                 1.49

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.24             2.99                 3.71

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.200(In)
Area Averaged 100-Year Rainfall =    2.990(In)

Point rain (area averaged) =    2.990(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.990(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     1.240           69.00          0.200
 Total Area Entered =      1.24(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306       1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	792.279	80.994	1.012
2	0.167	1584.557	19.006	0.238
		Sum = 100.000	Sum=	1.250

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

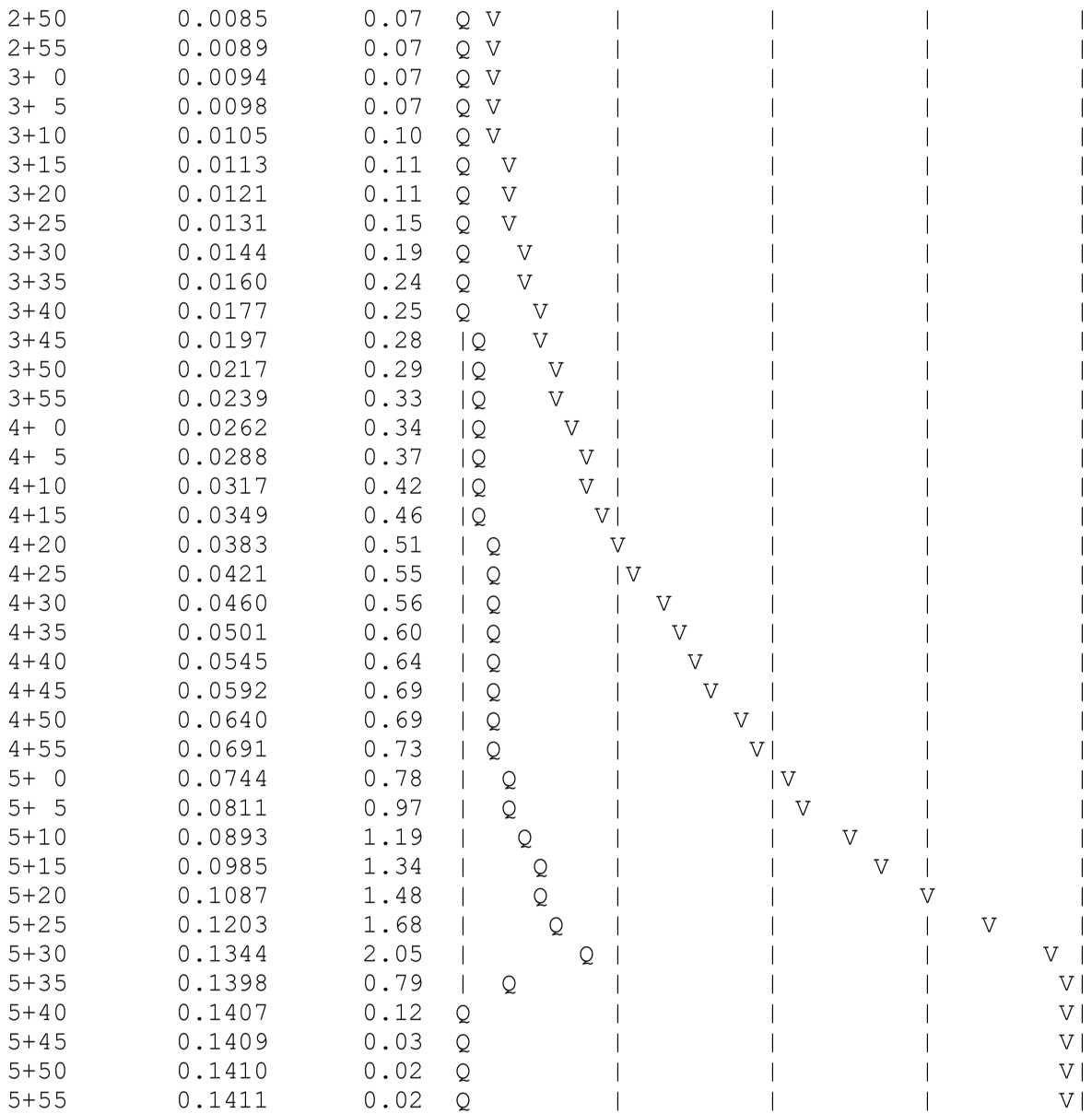
Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max		Low	Effective (In/Hr)
1	0.08	0.50	0.179	(0.306)	0.161	0.018
2	0.17	0.60	0.215	(0.306)	0.194	0.022
3	0.25	0.60	0.215	(0.306)	0.194	0.022
4	0.33	0.60	0.215	(0.306)	0.194	0.022
5	0.42	0.60	0.215	(0.306)	0.194	0.022
6	0.50	0.70	0.251	(0.306)	0.226	0.025
7	0.58	0.70	0.251	(0.306)	0.226	0.025
8	0.67	0.70	0.251	(0.306)	0.226	0.025
9	0.75	0.70	0.251	(0.306)	0.226	0.025
10	0.83	0.70	0.251	(0.306)	0.226	0.025
11	0.92	0.70	0.251	(0.306)	0.226	0.025
12	1.00	0.80	0.287	(0.306)	0.258	0.029

13	1.08	0.80	0.287	(0.306)	0.258	0.029
14	1.17	0.80	0.287	(0.306)	0.258	0.029
15	1.25	0.80	0.287	(0.306)	0.258	0.029
16	1.33	0.80	0.287	(0.306)	0.258	0.029
17	1.42	0.80	0.287	(0.306)	0.258	0.029
18	1.50	0.80	0.287	(0.306)	0.258	0.029
19	1.58	0.80	0.287	(0.306)	0.258	0.029
20	1.67	0.80	0.287	(0.306)	0.258	0.029
21	1.75	0.80	0.287	(0.306)	0.258	0.029
22	1.83	0.80	0.287	(0.306)	0.258	0.029
23	1.92	0.80	0.287	(0.306)	0.258	0.029
24	2.00	0.90	0.323	(0.306)	0.291	0.032
25	2.08	0.80	0.287	(0.306)	0.258	0.029
26	2.17	0.90	0.323	(0.306)	0.291	0.032
27	2.25	0.90	0.323	(0.306)	0.291	0.032
28	2.33	0.90	0.323	(0.306)	0.291	0.032
29	2.42	0.90	0.323	(0.306)	0.291	0.032
30	2.50	0.90	0.323	(0.306)	0.291	0.032
31	2.58	0.90	0.323	(0.306)	0.291	0.032
32	2.67	0.90	0.323	(0.306)	0.291	0.032
33	2.75	1.00	0.359	0.306	(0.323)	0.053
34	2.83	1.00	0.359	0.306	(0.323)	0.053
35	2.92	1.00	0.359	0.306	(0.323)	0.053
36	3.00	1.00	0.359	0.306	(0.323)	0.053
37	3.08	1.00	0.359	0.306	(0.323)	0.053
38	3.17	1.10	0.395	0.306	(0.355)	0.089
39	3.25	1.10	0.395	0.306	(0.355)	0.089
40	3.33	1.10	0.395	0.306	(0.355)	0.089
41	3.42	1.20	0.431	0.306	(0.388)	0.125
42	3.50	1.30	0.466	0.306	(0.420)	0.161
43	3.58	1.40	0.502	0.306	(0.452)	0.197
44	3.67	1.40	0.502	0.306	(0.452)	0.197
45	3.75	1.50	0.538	0.306	(0.484)	0.233
46	3.83	1.50	0.538	0.306	(0.484)	0.233
47	3.92	1.60	0.574	0.306	(0.517)	0.268
48	4.00	1.60	0.574	0.306	(0.517)	0.268
49	4.08	1.70	0.610	0.306	(0.549)	0.304
50	4.17	1.80	0.646	0.306	(0.581)	0.340

```
51   4.25     1.90      0.682          0.306    (  0.614)         0.376
52   4.33     2.00      0.718          0.306    (  0.646)         0.412
53   4.42     2.10      0.753          0.306    (  0.678)         0.448
54   4.50     2.10      0.753          0.306    (  0.678)         0.448
55   4.58     2.20      0.789          0.306    (  0.710)         0.484
56   4.67     2.30      0.825          0.306    (  0.743)         0.520
57   4.75     2.40      0.861          0.306    (  0.775)         0.555
58   4.83     2.40      0.861          0.306    (  0.775)         0.555
59   4.92     2.50      0.897          0.306    (  0.807)         0.591
60   5.00     2.60      0.933          0.306    (  0.840)         0.627
61   5.08     3.10      1.112          0.306    (  1.001)         0.807
62   5.17     3.60      1.292          0.306    (  1.163)         0.986
63   5.25     3.90      1.399          0.306    (  1.259)         1.094
64   5.33     4.20      1.507          0.306    (  1.356)         1.201
65   5.42     4.70      1.686          0.306    (  1.518)         1.381
66   5.50     5.60      2.009          0.306    (  1.808)         1.704
67   5.58     1.90      0.682          0.306    (  0.614)         0.376
68   5.67     0.90      0.323       (  0.306)       0.291         0.032
69   5.75     0.60      0.215       (  0.306)       0.194         0.022
70   5.83     0.50      0.179       (  0.306)       0.161         0.018
71   5.92     0.30      0.108       (  0.306)       0.097         0.011
72   6.00     0.20      0.072       (  0.306)       0.065         0.007
          (Loss Rate Not Used)
   Sum =     100.0                                    Sum =    16.4
    Flood volume = Effective rainfall      1.37(In)
     times area       1.2(Ac.)/[(In)/(Ft.)] =       0.1(Ac.Ft)
    Total soil loss =      1.62(In)
    Total soil loss =     0.168(Ac.Ft)
    Total rainfall =      2.99(In)
    Flood volume =         6150.6 Cubic Feet
    Total soil loss =        7308.0 Cubic Feet
    ---------------------------------------------------------------
     Peak flow rate of this hydrograph =      2.053(CFS)
    ---------------------------------------------------------------
    +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        6 - H O U R    S T O R M
                    R u n o f f      H y d r o g r a p h
    ---------------------------------------------------------------
```

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0001	0.02	Q				
0+10	0.0003	0.03	Q				
0+15	0.0005	0.03	Q				
0+20	0.0007	0.03	Q				
0+25	0.0009	0.03	Q				
0+30	0.0011	0.03	Q				
0+35	0.0013	0.03	Q				
0+40	0.0015	0.03	Q				
0+45	0.0017	0.03	Q				
0+50	0.0019	0.03	Q				
0+55	0.0022	0.03	Q				
1+ 0	0.0024	0.04	Q				
1+ 5	0.0026	0.04	Q				
1+10	0.0029	0.04	Q				
1+15	0.0031	0.04	Q				
1+20	0.0034	0.04	Q				
1+25	0.0036	0.04	QV				
1+30	0.0039	0.04	QV				
1+35	0.0041	0.04	QV				
1+40	0.0044	0.04	QV				
1+45	0.0046	0.04	QV				
1+50	0.0049	0.04	QV				
1+55	0.0051	0.04	QV				
2+ 0	0.0054	0.04	QV				
2+ 5	0.0056	0.04	QV				
2+10	0.0059	0.04	QV				
2+15	0.0062	0.04	QV				
2+20	0.0065	0.04	QV				
2+25	0.0067	0.04	QV				
2+30	0.0070	0.04	QV				
2+35	0.0073	0.04	Q V				
2+40	0.0076	0.04	Q V				
2+45	0.0080	0.06	Q V				


2+50 0.0085 0.07
2+55 0.0089 0.07
3+ 0 0.0094 0.07
3+ 5 0.0098 0.07
3+10 0.0105 0.10
3+15 0.0113 0.11
3+20 0.0121 0.11
3+25 0.0131 0.15
3+30 0.0144 0.19
3+35 0.0160 0.24
3+40 0.0177 0.25
3+45 0.0197 0.28
3+50 0.0217 0.29
3+55 0.0239 0.33
4+ 0 0.0262 0.34
4+ 5 0.0288 0.37
4+10 0.0317 0.42
4+15 0.0349 0.46
4+20 0.0383 0.51
4+25 0.0421 0.55
4+30 0.0460 0.56
4+35 0.0501 0.60
4+40 0.0545 0.64
4+45 0.0592 0.69
4+50 0.0640 0.69
4+55 0.0691 0.73
5+ 0 0.0744 0.78
5+ 5 0.0811 0.97
5+10 0.0893 1.19
5+15 0.0985 1.34
5+20 0.1087 1.48
5+25 0.1203 1.68
5+30 0.1344 2.05
5+35 0.1398 0.79
5+40 0.1407 0.12
5+45 0.1409 0.03
5+50 0.1410 0.02
5+55 0.1411 0.02

```
    6+ 0       0.1412      0.01  Q          |          |          |         V|
    6+ 5       0.1412      0.00  Q          |          |          |         V|
-------------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

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Study date 01/03/23 File: VOLT1124100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 11- 100 YR, 24-hr

Drainage Area = 1.24(Ac.) = 0.002 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.24(Ac.) = 0.002 Sq. Mi.
Length along longest watercourse = 180.00(Ft.)
Length along longest watercourse measured to centroid = 90.00(Ft.)
Length along longest watercourse = 0.034 Mi.
Length along longest watercourse measured to centroid = 0.017 Mi.
Difference in elevation = 1.37(Ft.)
Slope along watercourse = 40.1867 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.011 Hr.
Lag time =     0.63 Min.
25% of lag time =     0.16 Min.
40% of lag time =     0.25 Min.
Unit time =     5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.24             2.06                 2.55

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.24             5.39                 6.68

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    2.060(In)
Area Averaged 100-Year Rainfall =    5.390(In)

Point rain (area averaged) =    5.390(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    5.390(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     1.240           69.00          0.200
 Total Area Entered =      1.24(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.200        0.306        1.000      0.306
```

Sum (F) = 0.306

Area averaged mean soil loss (F) (In/Hr) = 0.306
Minimum soil loss rate ((In/Hr)) = 0.153
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	792.279	80.994	1.012
2	0.167	1584.557	19.006	0.238
		Sum = 100.000	Sum=	1.250

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.043	(0.542)	0.039	0.004
2	0.17	0.07	0.043	(0.540)	0.039	0.004
3	0.25	0.07	0.043	(0.538)	0.039	0.004
4	0.33	0.10	0.065	(0.536)	0.058	0.006
5	0.42	0.10	0.065	(0.534)	0.058	0.006
6	0.50	0.10	0.065	(0.531)	0.058	0.006
7	0.58	0.10	0.065	(0.529)	0.058	0.006
8	0.67	0.10	0.065	(0.527)	0.058	0.006
9	0.75	0.10	0.065	(0.525)	0.058	0.006
10	0.83	0.13	0.086	(0.523)	0.078	0.009
11	0.92	0.13	0.086	(0.521)	0.078	0.009
12	1.00	0.13	0.086	(0.519)	0.078	0.009

13	1.08	0.10	0.065	(0.517)	0.058	0.006
14	1.17	0.10	0.065	(0.515)	0.058	0.006
15	1.25	0.10	0.065	(0.513)	0.058	0.006
16	1.33	0.10	0.065	(0.511)	0.058	0.006
17	1.42	0.10	0.065	(0.509)	0.058	0.006
18	1.50	0.10	0.065	(0.507)	0.058	0.006
19	1.58	0.10	0.065	(0.505)	0.058	0.006
20	1.67	0.10	0.065	(0.503)	0.058	0.006
21	1.75	0.10	0.065	(0.501)	0.058	0.006
22	1.83	0.13	0.086	(0.499)	0.078	0.009
23	1.92	0.13	0.086	(0.497)	0.078	0.009
24	2.00	0.13	0.086	(0.495)	0.078	0.009
25	2.08	0.13	0.086	(0.493)	0.078	0.009
26	2.17	0.13	0.086	(0.491)	0.078	0.009
27	2.25	0.13	0.086	(0.489)	0.078	0.009
28	2.33	0.13	0.086	(0.487)	0.078	0.009
29	2.42	0.13	0.086	(0.485)	0.078	0.009
30	2.50	0.13	0.086	(0.483)	0.078	0.009
31	2.58	0.17	0.108	(0.481)	0.097	0.011
32	2.67	0.17	0.108	(0.479)	0.097	0.011
33	2.75	0.17	0.108	(0.477)	0.097	0.011
34	2.83	0.17	0.108	(0.475)	0.097	0.011
35	2.92	0.17	0.108	(0.473)	0.097	0.011
36	3.00	0.17	0.108	(0.471)	0.097	0.011
37	3.08	0.17	0.108	(0.469)	0.097	0.011
38	3.17	0.17	0.108	(0.467)	0.097	0.011
39	3.25	0.17	0.108	(0.465)	0.097	0.011
40	3.33	0.17	0.108	(0.463)	0.097	0.011
41	3.42	0.17	0.108	(0.461)	0.097	0.011
42	3.50	0.17	0.108	(0.459)	0.097	0.011
43	3.58	0.17	0.108	(0.457)	0.097	0.011
44	3.67	0.17	0.108	(0.456)	0.097	0.011
45	3.75	0.17	0.108	(0.454)	0.097	0.011
46	3.83	0.20	0.129	(0.452)	0.116	0.013
47	3.92	0.20	0.129	(0.450)	0.116	0.013
48	4.00	0.20	0.129	(0.448)	0.116	0.013
49	4.08	0.20	0.129	(0.446)	0.116	0.013
50	4.17	0.20	0.129	(0.444)	0.116	0.013

51	4.25	0.20	0.129	(0.442)	0.116	0.013
52	4.33	0.23	0.151	(0.440)	0.136	0.015
53	4.42	0.23	0.151	(0.438)	0.136	0.015
54	4.50	0.23	0.151	(0.437)	0.136	0.015
55	4.58	0.23	0.151	(0.435)	0.136	0.015
56	4.67	0.23	0.151	(0.433)	0.136	0.015
57	4.75	0.23	0.151	(0.431)	0.136	0.015
58	4.83	0.27	0.172	(0.429)	0.155	0.017
59	4.92	0.27	0.172	(0.427)	0.155	0.017
60	5.00	0.27	0.172	(0.425)	0.155	0.017
61	5.08	0.20	0.129	(0.424)	0.116	0.013
62	5.17	0.20	0.129	(0.422)	0.116	0.013
63	5.25	0.20	0.129	(0.420)	0.116	0.013
64	5.33	0.23	0.151	(0.418)	0.136	0.015
65	5.42	0.23	0.151	(0.416)	0.136	0.015
66	5.50	0.23	0.151	(0.414)	0.136	0.015
67	5.58	0.27	0.172	(0.413)	0.155	0.017
68	5.67	0.27	0.172	(0.411)	0.155	0.017
69	5.75	0.27	0.172	(0.409)	0.155	0.017
70	5.83	0.27	0.172	(0.407)	0.155	0.017
71	5.92	0.27	0.172	(0.405)	0.155	0.017
72	6.00	0.27	0.172	(0.404)	0.155	0.017
73	6.08	0.30	0.194	(0.402)	0.175	0.019
74	6.17	0.30	0.194	(0.400)	0.175	0.019
75	6.25	0.30	0.194	(0.398)	0.175	0.019
76	6.33	0.30	0.194	(0.396)	0.175	0.019
77	6.42	0.30	0.194	(0.395)	0.175	0.019
78	6.50	0.30	0.194	(0.393)	0.175	0.019
79	6.58	0.33	0.216	(0.391)	0.194	0.022
80	6.67	0.33	0.216	(0.389)	0.194	0.022
81	6.75	0.33	0.216	(0.388)	0.194	0.022
82	6.83	0.33	0.216	(0.386)	0.194	0.022
83	6.92	0.33	0.216	(0.384)	0.194	0.022
84	7.00	0.33	0.216	(0.382)	0.194	0.022
85	7.08	0.33	0.216	(0.381)	0.194	0.022
86	7.17	0.33	0.216	(0.379)	0.194	0.022
87	7.25	0.33	0.216	(0.377)	0.194	0.022
88	7.33	0.37	0.237	(0.375)	0.213	0.024

89	7.42	0.37	0.237	(0.374)	0.213	0.024
90	7.50	0.37	0.237	(0.372)	0.213	0.024
91	7.58	0.40	0.259	(0.370)	0.233	0.026
92	7.67	0.40	0.259	(0.369)	0.233	0.026
93	7.75	0.40	0.259	(0.367)	0.233	0.026
94	7.83	0.43	0.280	(0.365)	0.252	0.028
95	7.92	0.43	0.280	(0.363)	0.252	0.028
96	8.00	0.43	0.280	(0.362)	0.252	0.028
97	8.08	0.50	0.323	(0.360)	0.291	0.032
98	8.17	0.50	0.323	(0.358)	0.291	0.032
99	8.25	0.50	0.323	(0.357)	0.291	0.032
100	8.33	0.50	0.323	(0.355)	0.291	0.032
101	8.42	0.50	0.323	(0.353)	0.291	0.032
102	8.50	0.50	0.323	(0.352)	0.291	0.032
103	8.58	0.53	0.345	(0.350)	0.310	0.034
104	8.67	0.53	0.345	(0.348)	0.310	0.034
105	8.75	0.53	0.345	(0.347)	0.310	0.034
106	8.83	0.57	0.367	(0.345)	0.330	0.037
107	8.92	0.57	0.367	(0.344)	0.330	0.037
108	9.00	0.57	0.367	(0.342)	0.330	0.037
109	9.08	0.63	0.410	0.340	(0.369)	0.069
110	9.17	0.63	0.410	0.339	(0.369)	0.071
111	9.25	0.63	0.410	0.337	(0.369)	0.073
112	9.33	0.67	0.431	0.335	(0.388)	0.096
113	9.42	0.67	0.431	0.334	(0.388)	0.097
114	9.50	0.67	0.431	0.332	(0.388)	0.099
115	9.58	0.70	0.453	0.331	(0.407)	0.122
116	9.67	0.70	0.453	0.329	(0.407)	0.124
117	9.75	0.70	0.453	0.328	(0.407)	0.125
118	9.83	0.73	0.474	0.326	(0.427)	0.148
119	9.92	0.73	0.474	0.324	(0.427)	0.150
120	10.00	0.73	0.474	0.323	(0.427)	0.152
121	10.08	0.50	0.323	(0.321)	0.291	0.032
122	10.17	0.50	0.323	(0.320)	0.291	0.032
123	10.25	0.50	0.323	(0.318)	0.291	0.032
124	10.33	0.50	0.323	(0.317)	0.291	0.032
125	10.42	0.50	0.323	(0.315)	0.291	0.032
126	10.50	0.50	0.323	(0.314)	0.291	0.032

127	10.58	0.67	0.431	0.312	(	0.388)	0.119
128	10.67	0.67	0.431	0.310	(	0.388)	0.121
129	10.75	0.67	0.431	0.309	(	0.388)	0.122
130	10.83	0.67	0.431	0.307	(	0.388)	0.124
131	10.92	0.67	0.431	0.306	(	0.388)	0.125
132	11.00	0.67	0.431	0.304	(	0.388)	0.127
133	11.08	0.63	0.410	0.303	(	0.369)	0.107
134	11.17	0.63	0.410	0.301	(	0.369)	0.108
135	11.25	0.63	0.410	0.300	(	0.369)	0.110
136	11.33	0.63	0.410	0.298	(	0.369)	0.111
137	11.42	0.63	0.410	0.297	(	0.369)	0.113
138	11.50	0.63	0.410	0.296	(	0.369)	0.114
139	11.58	0.57	0.367	0.294	(	0.330)	0.072
140	11.67	0.57	0.367	0.293	(	0.330)	0.074
141	11.75	0.57	0.367	0.291	(	0.330)	0.075
142	11.83	0.60	0.388	0.290	(	0.349)	0.098
143	11.92	0.60	0.388	0.288	(	0.349)	0.100
144	12.00	0.60	0.388	0.287	(	0.349)	0.101
145	12.08	0.83	0.539	0.285	(	0.485)	0.254
146	12.17	0.83	0.539	0.284	(	0.485)	0.255
147	12.25	0.83	0.539	0.283	(	0.485)	0.256
148	12.33	0.87	0.561	0.281	(	0.505)	0.279
149	12.42	0.87	0.561	0.280	(	0.505)	0.281
150	12.50	0.87	0.561	0.278	(	0.505)	0.282
151	12.58	0.93	0.604	0.277	(	0.543)	0.327
152	12.67	0.93	0.604	0.275	(	0.543)	0.328
153	12.75	0.93	0.604	0.274	(	0.543)	0.330
154	12.83	0.97	0.625	0.273	(	0.563)	0.353
155	12.92	0.97	0.625	0.271	(	0.563)	0.354
156	13.00	0.97	0.625	0.270	(	0.563)	0.355
157	13.08	1.13	0.733	0.269	(	0.660)	0.464
158	13.17	1.13	0.733	0.267	(	0.660)	0.466
159	13.25	1.13	0.733	0.266	(	0.660)	0.467
160	13.33	1.13	0.733	0.265	(	0.660)	0.469
161	13.42	1.13	0.733	0.263	(	0.660)	0.470
162	13.50	1.13	0.733	0.262	(	0.660)	0.471
163	13.58	0.77	0.496	0.261	(	0.446)	0.235
164	13.67	0.77	0.496	0.259	(	0.446)	0.237

165	13.75	0.77	0.496	0.258	(0.446)	0.238
166	13.83	0.77	0.496	0.257	(0.446)	0.239
167	13.92	0.77	0.496	0.255	(0.446)	0.241
168	14.00	0.77	0.496	0.254	(0.446)	0.242
169	14.08	0.90	0.582	0.253	(0.524)	0.329
170	14.17	0.90	0.582	0.251	(0.524)	0.331
171	14.25	0.90	0.582	0.250	(0.524)	0.332
172	14.33	0.87	0.561	0.249	(0.505)	0.312
173	14.42	0.87	0.561	0.248	(0.505)	0.313
174	14.50	0.87	0.561	0.246	(0.505)	0.314
175	14.58	0.87	0.561	0.245	(0.505)	0.316
176	14.67	0.87	0.561	0.244	(0.505)	0.317
177	14.75	0.87	0.561	0.242	(0.505)	0.318
178	14.83	0.83	0.539	0.241	(0.485)	0.298
179	14.92	0.83	0.539	0.240	(0.485)	0.299
180	15.00	0.83	0.539	0.239	(0.485)	0.300
181	15.08	0.80	0.517	0.238	(0.466)	0.280
182	15.17	0.80	0.517	0.236	(0.466)	0.281
183	15.25	0.80	0.517	0.235	(0.466)	0.282
184	15.33	0.77	0.496	0.234	(0.446)	0.262
185	15.42	0.77	0.496	0.233	(0.446)	0.263
186	15.50	0.77	0.496	0.232	(0.446)	0.264
187	15.58	0.63	0.410	0.230	(0.369)	0.179
188	15.67	0.63	0.410	0.229	(0.369)	0.180
189	15.75	0.63	0.410	0.228	(0.369)	0.182
190	15.83	0.63	0.410	0.227	(0.369)	0.183
191	15.92	0.63	0.410	0.226	(0.369)	0.184
192	16.00	0.63	0.410	0.224	(0.369)	0.185
193	16.08	0.13	0.086	(0.223)	0.078	0.009
194	16.17	0.13	0.086	(0.222)	0.078	0.009
195	16.25	0.13	0.086	(0.221)	0.078	0.009
196	16.33	0.13	0.086	(0.220)	0.078	0.009
197	16.42	0.13	0.086	(0.219)	0.078	0.009
198	16.50	0.13	0.086	(0.218)	0.078	0.009
199	16.58	0.10	0.065	(0.217)	0.058	0.006
200	16.67	0.10	0.065	(0.215)	0.058	0.006
201	16.75	0.10	0.065	(0.214)	0.058	0.006
202	16.83	0.10	0.065	(0.213)	0.058	0.006

203	16.92	0.10	0.065	(0.212)	0.058	0.006
204	17.00	0.10	0.065	(0.211)	0.058	0.006
205	17.08	0.17	0.108	(0.210)	0.097	0.011
206	17.17	0.17	0.108	(0.209)	0.097	0.011
207	17.25	0.17	0.108	(0.208)	0.097	0.011
208	17.33	0.17	0.108	(0.207)	0.097	0.011
209	17.42	0.17	0.108	(0.206)	0.097	0.011
210	17.50	0.17	0.108	(0.205)	0.097	0.011
211	17.58	0.17	0.108	(0.204)	0.097	0.011
212	17.67	0.17	0.108	(0.203)	0.097	0.011
213	17.75	0.17	0.108	(0.202)	0.097	0.011
214	17.83	0.13	0.086	(0.201)	0.078	0.009
215	17.92	0.13	0.086	(0.200)	0.078	0.009
216	18.00	0.13	0.086	(0.199)	0.078	0.009
217	18.08	0.13	0.086	(0.198)	0.078	0.009
218	18.17	0.13	0.086	(0.197)	0.078	0.009
219	18.25	0.13	0.086	(0.196)	0.078	0.009
220	18.33	0.13	0.086	(0.195)	0.078	0.009
221	18.42	0.13	0.086	(0.194)	0.078	0.009
222	18.50	0.13	0.086	(0.193)	0.078	0.009
223	18.58	0.10	0.065	(0.192)	0.058	0.006
224	18.67	0.10	0.065	(0.191)	0.058	0.006
225	18.75	0.10	0.065	(0.190)	0.058	0.006
226	18.83	0.07	0.043	(0.189)	0.039	0.004
227	18.92	0.07	0.043	(0.188)	0.039	0.004
228	19.00	0.07	0.043	(0.188)	0.039	0.004
229	19.08	0.10	0.065	(0.187)	0.058	0.006
230	19.17	0.10	0.065	(0.186)	0.058	0.006
231	19.25	0.10	0.065	(0.185)	0.058	0.006
232	19.33	0.13	0.086	(0.184)	0.078	0.009
233	19.42	0.13	0.086	(0.183)	0.078	0.009
234	19.50	0.13	0.086	(0.182)	0.078	0.009
235	19.58	0.10	0.065	(0.182)	0.058	0.006
236	19.67	0.10	0.065	(0.181)	0.058	0.006
237	19.75	0.10	0.065	(0.180)	0.058	0.006
238	19.83	0.07	0.043	(0.179)	0.039	0.004
239	19.92	0.07	0.043	(0.178)	0.039	0.004
240	20.00	0.07	0.043	(0.178)	0.039	0.004

241	20.08	0.10	0.065	(0.177)	0.058	0.006
242	20.17	0.10	0.065	(0.176)	0.058	0.006
243	20.25	0.10	0.065	(0.175)	0.058	0.006
244	20.33	0.10	0.065	(0.174)	0.058	0.006
245	20.42	0.10	0.065	(0.174)	0.058	0.006
246	20.50	0.10	0.065	(0.173)	0.058	0.006
247	20.58	0.10	0.065	(0.172)	0.058	0.006
248	20.67	0.10	0.065	(0.171)	0.058	0.006
249	20.75	0.10	0.065	(0.171)	0.058	0.006
250	20.83	0.07	0.043	(0.170)	0.039	0.004
251	20.92	0.07	0.043	(0.169)	0.039	0.004
252	21.00	0.07	0.043	(0.169)	0.039	0.004
253	21.08	0.10	0.065	(0.168)	0.058	0.006
254	21.17	0.10	0.065	(0.167)	0.058	0.006
255	21.25	0.10	0.065	(0.167)	0.058	0.006
256	21.33	0.07	0.043	(0.166)	0.039	0.004
257	21.42	0.07	0.043	(0.165)	0.039	0.004
258	21.50	0.07	0.043	(0.165)	0.039	0.004
259	21.58	0.10	0.065	(0.164)	0.058	0.006
260	21.67	0.10	0.065	(0.164)	0.058	0.006
261	21.75	0.10	0.065	(0.163)	0.058	0.006
262	21.83	0.07	0.043	(0.163)	0.039	0.004
263	21.92	0.07	0.043	(0.162)	0.039	0.004
264	22.00	0.07	0.043	(0.161)	0.039	0.004
265	22.08	0.10	0.065	(0.161)	0.058	0.006
266	22.17	0.10	0.065	(0.160)	0.058	0.006
267	22.25	0.10	0.065	(0.160)	0.058	0.006
268	22.33	0.07	0.043	(0.159)	0.039	0.004
269	22.42	0.07	0.043	(0.159)	0.039	0.004
270	22.50	0.07	0.043	(0.158)	0.039	0.004
271	22.58	0.07	0.043	(0.158)	0.039	0.004
272	22.67	0.07	0.043	(0.157)	0.039	0.004
273	22.75	0.07	0.043	(0.157)	0.039	0.004
274	22.83	0.07	0.043	(0.157)	0.039	0.004
275	22.92	0.07	0.043	(0.156)	0.039	0.004
276	23.00	0.07	0.043	(0.156)	0.039	0.004
277	23.08	0.07	0.043	(0.155)	0.039	0.004
278	23.17	0.07	0.043	(0.155)	0.039	0.004

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279  23.25     0.07      0.043       (  0.155)       0.039        0.004
280  23.33     0.07      0.043       (  0.155)       0.039        0.004
281  23.42     0.07      0.043       (  0.154)       0.039        0.004
282  23.50     0.07      0.043       (  0.154)       0.039        0.004
283  23.58     0.07      0.043       (  0.154)       0.039        0.004
284  23.67     0.07      0.043       (  0.153)       0.039        0.004
285  23.75     0.07      0.043       (  0.153)       0.039        0.004
286  23.83     0.07      0.043       (  0.153)       0.039        0.004
287  23.92     0.07      0.043       (  0.153)       0.039        0.004
288  24.00     0.07      0.043       (  0.153)       0.039        0.004
            (Loss Rate Not Used)
    Sum =     100.0                                    Sum =    20.2
     Flood volume = Effective rainfall      1.68(In)
      times area       1.2(Ac.)/[(In)/(Ft.)] =       0.2(Ac.Ft)
     Total soil loss =      3.71(In)
     Total soil loss =     0.383(Ac.Ft)
     Total rainfall =      5.39(In)
     Flood volume =         7574.9 Cubic Feet
     Total soil loss =       16686.5 Cubic Feet
     ---------------------------------------------------------------------
      Peak flow rate of this hydrograph =      0.589(CFS)
     ---------------------------------------------------------------------
     +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                         24 - H O U R    S T O R M
                    R u n o f f      H y d r o g r a p h
     ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

     ---------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
 ----------------------------------------------------------------------
   0+ 5       0.0000      0.00  Q         |         |         |         |
   0+10       0.0001      0.01  Q         |         |         |         |
   0+15       0.0001      0.01  Q         |         |         |         |
   0+20       0.0002      0.01  Q         |         |         |         |
   0+25       0.0002      0.01  Q         |         |         |         |
   0+30       0.0003      0.01  Q         |         |         |         |
   0+35       0.0003      0.01  Q         |         |         |         |
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0+40	0.0004	0.01	Q				
0+45	0.0004	0.01	Q				
0+50	0.0005	0.01	Q				
0+55	0.0006	0.01	Q				
1+ 0	0.0007	0.01	Q				
1+ 5	0.0007	0.01	Q				
1+10	0.0008	0.01	Q				
1+15	0.0008	0.01	Q				
1+20	0.0009	0.01	Q				
1+25	0.0009	0.01	Q				
1+30	0.0010	0.01	Q				
1+35	0.0010	0.01	Q				
1+40	0.0011	0.01	Q				
1+45	0.0012	0.01	Q				
1+50	0.0012	0.01	Q				
1+55	0.0013	0.01	Q				
2+ 0	0.0014	0.01	Q				
2+ 5	0.0015	0.01	Q				
2+10	0.0015	0.01	Q				
2+15	0.0016	0.01	Q				
2+20	0.0017	0.01	Q				
2+25	0.0017	0.01	Q				
2+30	0.0018	0.01	Q				
2+35	0.0019	0.01	Q				
2+40	0.0020	0.01	Q				
2+45	0.0021	0.01	Q				
2+50	0.0022	0.01	Q				
2+55	0.0023	0.01	Q				
3+ 0	0.0024	0.01	Q				
3+ 5	0.0025	0.01	Q				
3+10	0.0026	0.01	Q				
3+15	0.0027	0.01	Q				
3+20	0.0027	0.01	Q				
3+25	0.0028	0.01	Q				
3+30	0.0029	0.01	Q				
3+35	0.0030	0.01	Q				
3+40	0.0031	0.01	Q				
3+45	0.0032	0.01	Q				

3+50	0.0033	0.02	Q				
3+55	0.0034	0.02	Q				
4+ 0	0.0035	0.02	Q				
4+ 5	0.0037	0.02	Q				
4+10	0.0038	0.02	Q				
4+15	0.0039	0.02	Q				
4+20	0.0040	0.02	Q				
4+25	0.0041	0.02	Q				
4+30	0.0043	0.02	Q				
4+35	0.0044	0.02	QV				
4+40	0.0045	0.02	QV				
4+45	0.0047	0.02	QV				
4+50	0.0048	0.02	QV				
4+55	0.0049	0.02	QV				
5+ 0	0.0051	0.02	QV				
5+ 5	0.0052	0.02	QV				
5+10	0.0053	0.02	QV				
5+15	0.0054	0.02	QV				
5+20	0.0056	0.02	QV				
5+25	0.0057	0.02	QV				
5+30	0.0058	0.02	QV				
5+35	0.0060	0.02	QV				
5+40	0.0061	0.02	QV				
5+45	0.0063	0.02	QV				
5+50	0.0064	0.02	QV				
5+55	0.0066	0.02	QV				
6+ 0	0.0067	0.02	QV				
6+ 5	0.0069	0.02	QV				
6+10	0.0070	0.02	QV				
6+15	0.0072	0.02	QV				
6+20	0.0074	0.02	QV				
6+25	0.0075	0.02	QV				
6+30	0.0077	0.02	QV				
6+35	0.0079	0.03	QV				
6+40	0.0081	0.03	QV				
6+45	0.0083	0.03	QV				
6+50	0.0084	0.03	QV				
6+55	0.0086	0.03	QV				

7+ 0	0.0088	0.03	Q V	|	|	|	|
7+ 5	0.0090	0.03	Q V	|	|	|	|
7+10	0.0092	0.03	Q V	|	|	|	|
7+15	0.0094	0.03	Q V	|	|	|	|
7+20	0.0096	0.03	Q V	|	|	|	|
7+25	0.0098	0.03	Q V	|	|	|	|
7+30	0.0100	0.03	Q V	|	|	|	|
7+35	0.0102	0.03	Q V	|	|	|	|
7+40	0.0104	0.03	Q V	|	|	|	|
7+45	0.0107	0.03	Q V	|	|	|	|
7+50	0.0109	0.03	Q V	|	|	|	|
7+55	0.0111	0.04	Q V	|	|	|	|
8+ 0	0.0114	0.04	Q V	|	|	|	|
8+ 5	0.0116	0.04	Q V	|	|	|	|
8+10	0.0119	0.04	Q V	|	|	|	|
8+15	0.0122	0.04	Q V	|	|	|	|
8+20	0.0125	0.04	Q V	|	|	|	|
8+25	0.0128	0.04	Q V	|	|	|	|
8+30	0.0130	0.04	Q V	|	|	|	|
8+35	0.0133	0.04	Q V	|	|	|	|
8+40	0.0136	0.04	Q V	|	|	|	|
8+45	0.0139	0.04	Q V	|	|	|	|
8+50	0.0142	0.05	Q V	|	|	|	|
8+55	0.0146	0.05	Q V	|	|	|	|
9+ 0	0.0149	0.05	Q V	|	|	|	|
9+ 5	0.0154	0.08	Q V	|	|	|	|
9+10	0.0160	0.09	Q V	|	|	|	|
9+15	0.0166	0.09	Q V	|	|	|	|
9+20	0.0174	0.11	Q V	|	|	|	|
9+25	0.0183	0.12	Q V	|	|	|	|
9+30	0.0191	0.12	Q V	|	|	|	|
9+35	0.0201	0.15	Q V	|	|	|	|
9+40	0.0212	0.15	Q V	|	|	|	|
9+45	0.0223	0.16	Q V	|	|	|	|
9+50	0.0235	0.18	Q V	|	|	|	|
9+55	0.0248	0.19	Q V	|	|	|	|
10+ 0	0.0261	0.19	Q V	|	|	|	|
10+ 5	0.0266	0.07	Q V	|	|	|	|

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10+10       0.0268      0.04  Q     V   |          |          |          |
10+15       0.0271      0.04  Q     V   |          |          |          |
10+20       0.0274      0.04  Q     V   |          |          |          |
10+25       0.0277      0.04  Q     V   |          |          |          |
10+30       0.0280      0.04  Q     V   |          |          |          |
10+35       0.0288      0.13  Q     V   |          |          |          |
10+40       0.0299      0.15  Q     V   |          |          |          |
10+45       0.0309      0.15  Q      V  |          |          |          |
10+50       0.0320      0.15  Q      V  |          |          |          |
10+55       0.0331      0.16  Q      V  |          |          |          |
11+ 0       0.0342      0.16  Q      V  |          |          |          |
11+ 5       0.0351      0.14  Q       V |          |          |          |
11+10       0.0360      0.13  Q       V |          |          |          |
11+15       0.0370      0.14  Q       V |          |          |          |
11+20       0.0379      0.14  Q       V |          |          |          |
11+25       0.0389      0.14  Q       V |          |          |          |
11+30       0.0399      0.14  Q        V|          |          |          |
11+35       0.0406      0.10  Q        V|          |          |          |
11+40       0.0412      0.09  Q        V|          |          |          |
11+45       0.0419      0.09  Q        V|          |          |          |
11+50       0.0427      0.12  Q        V|          |          |          |
11+55       0.0435      0.12  Q         V          |          |          |
12+ 0       0.0444      0.13  Q         V          |          |          |
12+ 5       0.0463      0.28  |Q        V          |          |          |
12+10       0.0485      0.32  |Q         |V         |          |          |
12+15       0.0507      0.32  |Q         |V         |          |          |
12+20       0.0531      0.34  |Q         | V        |          |          |
12+25       0.0555      0.35  |Q         | V        |          |          |
12+30       0.0579      0.35  |Q         |  V       |          |          |
12+35       0.0607      0.40  |Q         |  V       |          |          |
12+40       0.0635      0.41  |Q         |   V      |          |          |
12+45       0.0663      0.41  |Q         |    V     |          |          |
12+50       0.0693      0.44  |Q         |    V     |          |          |
12+55       0.0724      0.44  |Q         |     V    |          |          |
13+ 0       0.0754      0.44  |Q         |      V   |          |          |
13+ 5       0.0793      0.55  | Q        |       V  |          |          |
13+10       0.0833      0.58  | Q        |        V |          |          |
13+15       0.0873      0.58  | Q        |         V|          |          |
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13+20       0.0913      0.59  | Q       |          |V        |          |
13+25       0.0954      0.59  | Q       |          |V        |          |
13+30       0.0994      0.59  | Q       |          | V       |          |
13+35       0.1018      0.35  |Q        |          |  V      |          |
13+40       0.1039      0.30  |Q        |          |  V      |          |
13+45       0.1059      0.30  |Q        |          |   V     |          |
13+50       0.1080      0.30  |Q        |          |   V     |          |
13+55       0.1101      0.30  |Q        |          |    V    |          |
14+ 0       0.1121      0.30  |Q        |          |    V    |          |
14+ 5       0.1148      0.39  |Q        |          |     V   |          |
14+10       0.1177      0.41  |Q        |          |      V  |          |
14+15       0.1205      0.41  |Q        |          |      V  |          |
14+20       0.1233      0.39  |Q        |          |       V |          |
14+25       0.1259      0.39  |Q        |          |       V |          |
14+30       0.1286      0.39  |Q        |          |        V|          |
14+35       0.1314      0.39  |Q        |          |         V          |
14+40       0.1341      0.40  |Q        |          |         V          |
14+45       0.1368      0.40  |Q        |          |          V         |
14+50       0.1394      0.38  |Q        |          |          | V       |
14+55       0.1420      0.37  |Q        |          |          | V       |
15+ 0       0.1446      0.38  |Q        |          |          |  V      |
15+ 5       0.1470      0.35  |Q        |          |          |  V      |
15+10       0.1494      0.35  |Q        |          |          |   V     |
15+15       0.1519      0.35  |Q        |          |          |   V     |
15+20       0.1542      0.33  |Q        |          |          |    V    |
15+25       0.1564      0.33  |Q        |          |          |    V    |
15+30       0.1587      0.33  |Q        |          |          |     V   |
15+35       0.1604      0.24  Q         |          |          |     V   |
15+40       0.1619      0.23  Q         |          |          |      V  |
15+45       0.1635      0.23  Q         |          |          |      V  |
15+50       0.1651      0.23  Q         |          |          |      V  |
15+55       0.1667      0.23  Q         |          |          |       V |
16+ 0       0.1682      0.23  Q         |          |          |       V |
16+ 5       0.1686      0.05  Q         |          |          |       V |
16+10       0.1687      0.01  Q         |          |          |       V |
16+15       0.1688      0.01  Q         |          |          |       V |
16+20       0.1688      0.01  Q         |          |          |       V |
16+25       0.1689      0.01  Q         |          |          |       V |
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16+30	0.1690	0.01	Q	|	|	|	V |
16+35	0.1690	0.01	Q	|	|	|	V |
16+40	0.1691	0.01	Q	|	|	|	V |
16+45	0.1692	0.01	Q	|	|	|	V |
16+50	0.1692	0.01	Q	|	|	|	V |
16+55	0.1693	0.01	Q	|	|	|	V |
17+ 0	0.1693	0.01	Q	|	|	|	V |
17+ 5	0.1694	0.01	Q	|	|	|	V |
17+10	0.1695	0.01	Q	|	|	|	V |
17+15	0.1696	0.01	Q	|	|	|	V|
17+20	0.1697	0.01	Q	|	|	|	V|
17+25	0.1698	0.01	Q	|	|	|	V|
17+30	0.1699	0.01	Q	|	|	|	V|
17+35	0.1700	0.01	Q	|	|	|	V|
17+40	0.1701	0.01	Q	|	|	|	V|
17+45	0.1701	0.01	Q	|	|	|	V|
17+50	0.1702	0.01	Q	|	|	|	V|
17+55	0.1703	0.01	Q	|	|	|	V|
18+ 0	0.1704	0.01	Q	|	|	|	V|
18+ 5	0.1704	0.01	Q	|	|	|	V|
18+10	0.1705	0.01	Q	|	|	|	V|
18+15	0.1706	0.01	Q	|	|	|	V|
18+20	0.1707	0.01	Q	|	|	|	V|
18+25	0.1707	0.01	Q	|	|	|	V|
18+30	0.1708	0.01	Q	|	|	|	V|
18+35	0.1709	0.01	Q	|	|	|	V|
18+40	0.1709	0.01	Q	|	|	|	V|
18+45	0.1710	0.01	Q	|	|	|	V|
18+50	0.1710	0.01	Q	|	|	|	V|
18+55	0.1711	0.01	Q	|	|	|	V|
19+ 0	0.1711	0.01	Q	|	|	|	V|
19+ 5	0.1712	0.01	Q	|	|	|	V|
19+10	0.1712	0.01	Q	|	|	|	V|
19+15	0.1713	0.01	Q	|	|	|	V|
19+20	0.1713	0.01	Q	|	|	|	V|
19+25	0.1714	0.01	Q	|	|	|	V|
19+30	0.1715	0.01	Q	|	|	|	V|
19+35	0.1715	0.01	Q	|	|	|	V|

19+40	0.1716	0.01	Q	|	|	|	V|
19+45	0.1717	0.01	Q	|	|	|	V|
19+50	0.1717	0.01	Q	|	|	|	V|
19+55	0.1717	0.01	Q	|	|	|	V|
20+ 0	0.1718	0.01	Q	|	|	|	V|
20+ 5	0.1718	0.01	Q	|	|	|	V|
20+10	0.1719	0.01	Q	|	|	|	V|
20+15	0.1719	0.01	Q	|	|	|	V|
20+20	0.1720	0.01	Q	|	|	|	V|
20+25	0.1720	0.01	Q	|	|	|	V|
20+30	0.1721	0.01	Q	|	|	|	V|
20+35	0.1722	0.01	Q	|	|	|	V|
20+40	0.1722	0.01	Q	|	|	|	V|
20+45	0.1723	0.01	Q	|	|	|	V|
20+50	0.1723	0.01	Q	|	|	|	V|
20+55	0.1723	0.01	Q	|	|	|	V|
21+ 0	0.1724	0.01	Q	|	|	|	V|
21+ 5	0.1724	0.01	Q	|	|	|	V|
21+10	0.1725	0.01	Q	|	|	|	V|
21+15	0.1725	0.01	Q	|	|	|	V|
21+20	0.1726	0.01	Q	|	|	|	V|
21+25	0.1726	0.01	Q	|	|	|	V|
21+30	0.1727	0.01	Q	|	|	|	V|
21+35	0.1727	0.01	Q	|	|	|	V|
21+40	0.1728	0.01	Q	|	|	|	V|
21+45	0.1728	0.01	Q	|	|	|	V|
21+50	0.1729	0.01	Q	|	|	|	V|
21+55	0.1729	0.01	Q	|	|	|	V|
22+ 0	0.1729	0.01	Q	|	|	|	V|
22+ 5	0.1730	0.01	Q	|	|	|	V|
22+10	0.1731	0.01	Q	|	|	|	V|
22+15	0.1731	0.01	Q	|	|	|	V|
22+20	0.1731	0.01	Q	|	|	|	V|
22+25	0.1732	0.01	Q	|	|	|	V|
22+30	0.1732	0.01	Q	|	|	|	V|
22+35	0.1733	0.01	Q	|	|	|	V|
22+40	0.1733	0.01	Q	|	|	|	V|
22+45	0.1733	0.01	Q	|	|	|	V|

```
   22+50       0.1734      0.01  Q          |          |          |         V|
   22+55       0.1734      0.01  Q          |          |          |         V|
   23+ 0       0.1734      0.01  Q          |          |          |         V|
   23+ 5       0.1735      0.01  Q          |          |          |         V|
   23+10       0.1735      0.01  Q          |          |          |         V|
   23+15       0.1736      0.01  Q          |          |          |         V|
   23+20       0.1736      0.01  Q          |          |          |         V|
   23+25       0.1736      0.01  Q          |          |          |         V|
   23+30       0.1737      0.01  Q          |          |          |         V|
   23+35       0.1737      0.01  Q          |          |          |         V|
   23+40       0.1737      0.01  Q          |          |          |         V|
   23+45       0.1738      0.01  Q          |          |          |         V|
   23+50       0.1738      0.01  Q          |          |          |         V|
   23+55       0.1739      0.01  Q          |          |          |         V|
   24+ 0       0.1739      0.01  Q          |          |          |         V|
   24+ 5       0.1739      0.00  Q          |          |          |         V|
-------------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

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Study date 01/02/23 File: VT121100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 12- 100 YR, 1-hr

Drainage Area = 1.35(Ac.) = 0.002 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.35(Ac.) = 0.002 Sq. Mi.
Length along longest watercourse = 210.00(Ft.)
Length along longest watercourse measured to centroid = 105.00(Ft.)
Length along longest watercourse = 0.040 Mi.
Length along longest watercourse measured to centroid = 0.020 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 25.1429 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.013 Hr.
Lag time =     0.78 Min.
25% of lag time =     0.19 Min.
40% of lag time =     0.31 Min.
Unit time =     5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.35              0.51                  0.69

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.35              1.61                  2.17

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.514(In)
Area Averaged 100-Year Rainfall =    1.610(In)

Point rain (area averaged) =    1.610(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    1.610(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     1.350           69.00          0.820
 Total Area Entered =      1.35(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.820        0.098        1.000      0.098
```

Sum (F) = 0.098

Area averaged mean soil loss (F) (In/Hr) = 0.098
Minimum soil loss rate ((In/Hr)) = 0.049
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

Slope of intensity-duration curve for a 1 hour storm =0.5500

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	644.617	76.827	1.045
2	0.167	1289.233	23.173	0.315
			Sum = 100.000 Sum=	1.361

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	3.30	0.638	0.098	(0.574)	0.540
2	0.17	4.20	0.811	0.098	(0.730)	0.714
3	0.25	4.40	0.850	0.098	(0.765)	0.752
4	0.33	4.80	0.927	0.098	(0.835)	0.830
5	0.42	5.20	1.005	0.098	(0.904)	0.907
6	0.50	6.20	1.198	0.098	(1.078)	1.100
7	0.58	6.80	1.314	0.098	(1.182)	1.216
8	0.67	8.80	1.700	0.098	(1.530)	1.602
9	0.75	13.90	2.685	0.098	(2.417)	2.588
10	0.83	31.40	6.066	0.098	(5.460)	5.969

```
 11   0.92     7.20      1.391          0.098     (  1.252)         1.293
 12   1.00     3.80      0.734          0.098     (  0.661)         0.636
           (Loss Rate Not Used)
    Sum =     100.0                                    Sum =     18.1
     Flood volume = Effective rainfall      1.51(In)
      times area       1.4(Ac.)/[(In)/(Ft.)] =       0.2(Ac.Ft)
     Total soil loss =      0.10(In)
     Total soil loss =     0.011(Ac.Ft)
     Total rainfall =      1.61(In)
     Flood volume =         7411.1 Cubic Feet
     Total soil loss =         478.6 Cubic Feet
     ---------------------------------------------------------------------
      Peak flow rate of this hydrograph =      7.058(CFS)
     ---------------------------------------------------------------------
     +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                         1 - H O U R    S T O R M
                    R u n o f f      H y d r o g r a p h
     ---------------------------------------------------------------------
                 Hydrograph in   5   Minute intervals ((CFS))

     ---------------------------------------------------------------------
  Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
  ------------------------------------------------------------------------
    0+ 5       0.0039      0.56  V Q       |         |         |         |
    0+10       0.0102      0.92  | VQ      |         |         |         |
    0+15       0.0172      1.01  |   Q     |         |         |         |
    0+20       0.0248      1.11  |   QV    |         |         |         |
    0+25       0.0331      1.21  |   Q  V  |         |         |         |
    0+30       0.0430      1.44  |    Q    V         |         |         |
    0+35       0.0542      1.62  |     Q   | V       |         |         |
    0+40       0.0683      2.06  |       Q |     V   |         |         |
    0+45       0.0905      3.21  |         | Q       |V        |         |
    0+50       0.1391      7.06  |         |         |       Q | V       |
    0+55       0.1614      3.24  |         | Q       |         |      V  |
    1+ 0       0.1688      1.07  |   Q     |         |         |        V|
    1+ 5       0.1701      0.20  Q         |         |         |         V
-------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

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Study date 01/02/23 File: VT123100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 12- 100 YR, 3-hr

Drainage Area = 1.35(Ac.) = 0.002 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.35(Ac.) = 0.002 Sq. Mi.
Length along longest watercourse = 210.00(Ft.)
Length along longest watercourse measured to centroid = 105.00(Ft.)
Length along longest watercourse = 0.040 Mi.
Length along longest watercourse measured to centroid = 0.020 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 25.1429 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.013 Hr.
Lag time =     0.78 Min.
25% of lag time =     0.19 Min.
40% of lag time =     0.31 Min.
Unit time =     5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.35              0.86                 1.17

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.35              2.25                 3.04

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.864(In)
Area Averaged 100-Year Rainfall =    2.250(In)

Point rain (area averaged) =    2.250(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.250(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     1.350           69.00          0.820
 Total Area Entered =      1.35(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.820        0.098        1.000      0.098
```

Sum (F) = 0.098

Area averaged mean soil loss (F) (In/Hr) = 0.098
Minimum soil loss rate ((In/Hr)) = 0.049
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	644.617	76.827	1.045
2	0.167	1289.233	23.173	0.315
		Sum = 100.000	Sum=	1.361

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.351	0.098	(0.316)	0.253
2	0.17	1.30	0.351	0.098	(0.316)	0.253
3	0.25	1.10	0.297	0.098	(0.267)	0.199
4	0.33	1.50	0.405	0.098	(0.364)	0.307
5	0.42	1.50	0.405	0.098	(0.364)	0.307
6	0.50	1.80	0.486	0.098	(0.437)	0.388
7	0.58	1.50	0.405	0.098	(0.364)	0.307
8	0.67	1.80	0.486	0.098	(0.437)	0.388
9	0.75	1.80	0.486	0.098	(0.437)	0.388
10	0.83	1.50	0.405	0.098	(0.364)	0.307
11	0.92	1.60	0.432	0.098	(0.389)	0.334
12	1.00	1.80	0.486	0.098	(0.437)	0.388

13	1.08	2.20	0.594	0.098	(	0.535)	0.496
14	1.17	2.20	0.594	0.098	(	0.535)	0.496
15	1.25	2.20	0.594	0.098	(	0.535)	0.496
16	1.33	2.00	0.540	0.098	(	0.486)	0.442
17	1.42	2.60	0.702	0.098	(	0.632)	0.604
18	1.50	2.70	0.729	0.098	(	0.656)	0.631
19	1.58	2.40	0.648	0.098	(	0.583)	0.550
20	1.67	2.70	0.729	0.098	(	0.656)	0.631
21	1.75	3.30	0.891	0.098	(	0.802)	0.793
22	1.83	3.10	0.837	0.098	(	0.753)	0.739
23	1.92	2.90	0.783	0.098	(	0.705)	0.685
24	2.00	3.00	0.810	0.098	(	0.729)	0.712
25	2.08	3.10	0.837	0.098	(	0.753)	0.739
26	2.17	4.20	1.134	0.098	(	1.021)	1.036
27	2.25	5.00	1.350	0.098	(	1.215)	1.252
28	2.33	3.50	0.945	0.098	(	0.850)	0.847
29	2.42	6.80	1.836	0.098	(	1.652)	1.738
30	2.50	7.30	1.971	0.098	(	1.774)	1.873
31	2.58	8.20	2.214	0.098	(	1.993)	2.116
32	2.67	5.90	1.593	0.098	(	1.434)	1.495
33	2.75	2.00	0.540	0.098	(	0.486)	0.442
34	2.83	1.80	0.486	0.098	(	0.437)	0.388
35	2.92	1.80	0.486	0.098	(	0.437)	0.388
36	3.00	0.60	0.162	0.098	(	0.146)	0.064

(Loss Rate Not Used)

Sum = 100.0 Sum = 23.5

Flood volume = Effective rainfall 1.96(In)

times area 1.4(Ac.)/[(In)/(Ft.)] = 0.2(Ac.Ft)

Total soil loss = 0.29(In)

Total soil loss = 0.033(Ac.Ft)

Total rainfall = 2.25(In)

Flood volume = 9590.1 Cubic Feet

Total soil loss = 1435.9 Cubic Feet

Peak flow rate of this hydrograph = 2.804(CFS)

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3 - H O U R S T O R M

R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0 2.5 5.0 7.5 10.0
0+ 5	0.0018	0.26	VQ | | | |
0+10	0.0042	0.34	VQ | | | |
0+15	0.0062	0.29	|Q | | | |
0+20	0.0088	0.38	|Q | | | |
0+25	0.0117	0.42	|QV | | | |
0+30	0.0152	0.50	| Q | | | |
0+35	0.0182	0.44	|Q V | | | |
0+40	0.0217	0.50	| QV | | | |
0+45	0.0253	0.53	| Q V | | | |
0+50	0.0284	0.44	|Q V | | | |
0+55	0.0315	0.45	|Q V | | | |
1+ 0	0.0350	0.51	| Q V | | | |
1+ 5	0.0394	0.64	| Q V | | | |
1+10	0.0441	0.68	| Q V | | | |
1+15	0.0487	0.68	| Q V | | | |
1+20	0.0530	0.62	| Q V| | | |
1+25	0.0583	0.77	| Q V | | |
1+30	0.0642	0.85	| Q |V | | |
1+35	0.0695	0.77	| Q | V | | |
1+40	0.0752	0.83	| Q | V | | |
1+45	0.0823	1.03	| Q | V | | |
1+50	0.0894	1.02	| Q | V | | |
1+55	0.0959	0.95	| Q | V | | |
2+ 0	0.1025	0.96	| Q | V | | |
2+ 5	0.1094	1.00	| Q | V| | |
2+10	0.1185	1.32	| Q | |V | |
2+15	0.1297	1.64	| Q | | V | |
2+20	0.1386	1.28	| Q | | V | |
2+25	0.1529	2.09	| Q | | V | |
2+30	0.1702	2.51	| Q | | V |
2+35	0.1895	2.80	| |Q | | V |

```
    2+40       0.2049      2.23  |        Q |          |          |       V  |
    2+45       0.2113      0.93  |  Q       |          |          |        V |
    2+50       0.2151      0.55  | Q        |          |          |         V|
    2+55       0.2187      0.53  | Q        |          |          |         V|
    3+ 0       0.2200      0.19  Q          |          |          |         V|
    3+ 5       0.2202      0.02  Q          |          |          |          V
-------------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

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Study date 01/02/23 File: VT126100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 12- 100 YR, 6-hr

Drainage Area = 1.35(Ac.) = 0.002 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.35(Ac.) = 0.002 Sq. Mi.
Length along longest watercourse = 210.00(Ft.)
Length along longest watercourse measured to centroid = 105.00(Ft.)
Length along longest watercourse = 0.040 Mi.
Length along longest watercourse measured to centroid = 0.020 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 25.1429 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.013 Hr.
Lag time =     0.78 Min.
25% of lag time =     0.19 Min.
40% of lag time =     0.31 Min.
Unit time =     5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.35             1.20                 1.62

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.35             2.99                 4.04

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.200(In)
Area Averaged 100-Year Rainfall =    2.990(In)

Point rain (area averaged) =    2.990(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.990(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     1.350           69.00          0.820
 Total Area Entered =      1.35(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.820        0.098        1.000      0.098
```

Sum (F) = 0.098

Area averaged mean soil loss (F) (In/Hr) = 0.098
Minimum soil loss rate ((In/Hr)) = 0.049
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	644.617	76.827	1.045
2	0.167	1289.233	23.173	0.315
		Sum = 100.000	Sum=	1.361

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

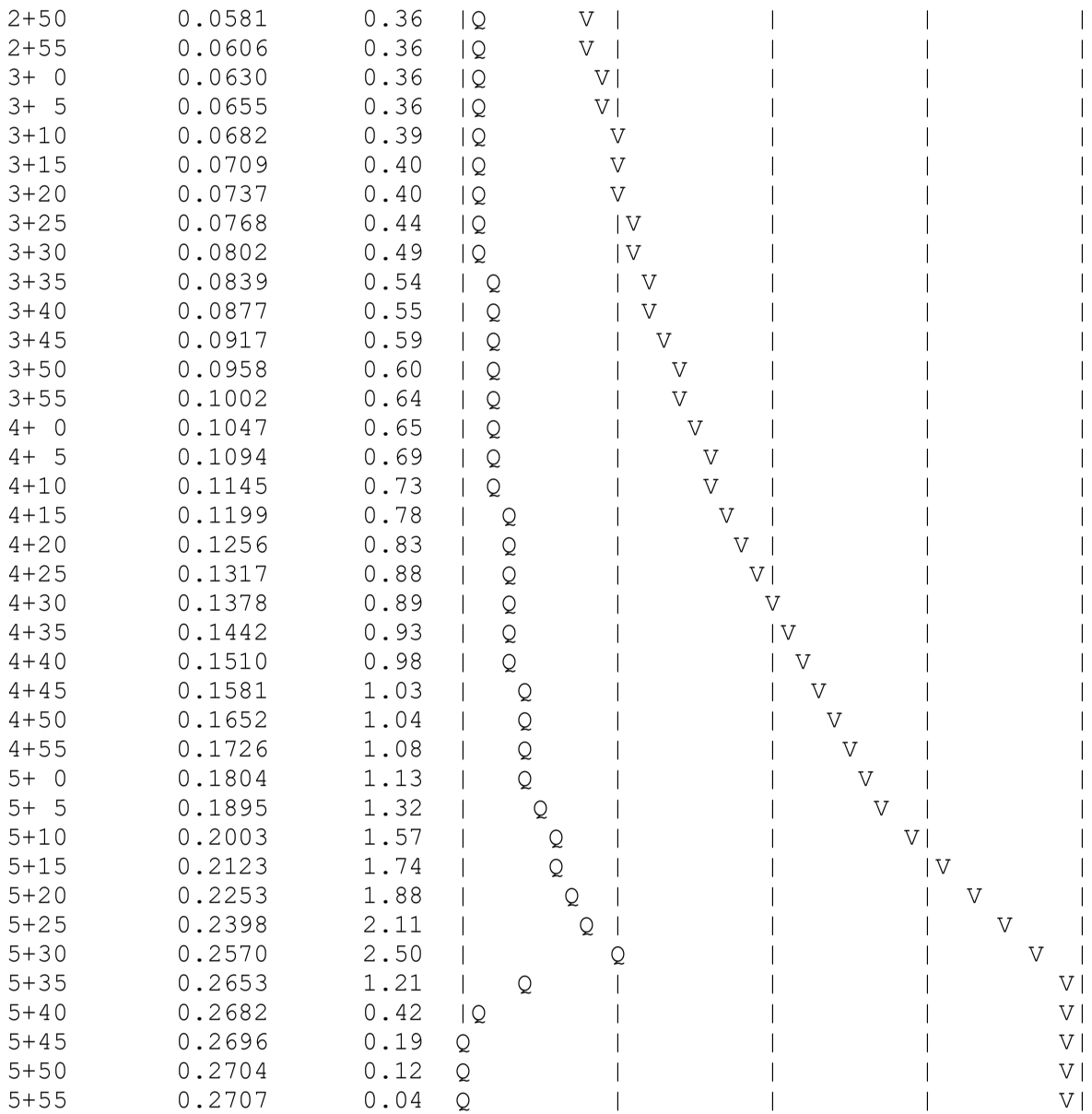
Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.179	0.098	(0.161)	0.082
2	0.17	0.60	0.215	0.098	(0.194)	0.118
3	0.25	0.60	0.215	0.098	(0.194)	0.118
4	0.33	0.60	0.215	0.098	(0.194)	0.118
5	0.42	0.60	0.215	0.098	(0.194)	0.118
6	0.50	0.70	0.251	0.098	(0.226)	0.153
7	0.58	0.70	0.251	0.098	(0.226)	0.153
8	0.67	0.70	0.251	0.098	(0.226)	0.153
9	0.75	0.70	0.251	0.098	(0.226)	0.153
10	0.83	0.70	0.251	0.098	(0.226)	0.153
11	0.92	0.70	0.251	0.098	(0.226)	0.153
12	1.00	0.80	0.287	0.098	(0.258)	0.189

13	1.08	0.80	0.287	0.098	(0.258)	0.189
14	1.17	0.80	0.287	0.098	(0.258)	0.189
15	1.25	0.80	0.287	0.098	(0.258)	0.189
16	1.33	0.80	0.287	0.098	(0.258)	0.189
17	1.42	0.80	0.287	0.098	(0.258)	0.189
18	1.50	0.80	0.287	0.098	(0.258)	0.189
19	1.58	0.80	0.287	0.098	(0.258)	0.189
20	1.67	0.80	0.287	0.098	(0.258)	0.189
21	1.75	0.80	0.287	0.098	(0.258)	0.189
22	1.83	0.80	0.287	0.098	(0.258)	0.189
23	1.92	0.80	0.287	0.098	(0.258)	0.189
24	2.00	0.90	0.323	0.098	(0.291)	0.225
25	2.08	0.80	0.287	0.098	(0.258)	0.189
26	2.17	0.90	0.323	0.098	(0.291)	0.225
27	2.25	0.90	0.323	0.098	(0.291)	0.225
28	2.33	0.90	0.323	0.098	(0.291)	0.225
29	2.42	0.90	0.323	0.098	(0.291)	0.225
30	2.50	0.90	0.323	0.098	(0.291)	0.225
31	2.58	0.90	0.323	0.098	(0.291)	0.225
32	2.67	0.90	0.323	0.098	(0.291)	0.225
33	2.75	1.00	0.359	0.098	(0.323)	0.261
34	2.83	1.00	0.359	0.098	(0.323)	0.261
35	2.92	1.00	0.359	0.098	(0.323)	0.261
36	3.00	1.00	0.359	0.098	(0.323)	0.261
37	3.08	1.00	0.359	0.098	(0.323)	0.261
38	3.17	1.10	0.395	0.098	(0.355)	0.297
39	3.25	1.10	0.395	0.098	(0.355)	0.297
40	3.33	1.10	0.395	0.098	(0.355)	0.297
41	3.42	1.20	0.431	0.098	(0.388)	0.333
42	3.50	1.30	0.466	0.098	(0.420)	0.369
43	3.58	1.40	0.502	0.098	(0.452)	0.405
44	3.67	1.40	0.502	0.098	(0.452)	0.405
45	3.75	1.50	0.538	0.098	(0.484)	0.441
46	3.83	1.50	0.538	0.098	(0.484)	0.441
47	3.92	1.60	0.574	0.098	(0.517)	0.476
48	4.00	1.60	0.574	0.098	(0.517)	0.476
49	4.08	1.70	0.610	0.098	(0.549)	0.512
50	4.17	1.80	0.646	0.098	(0.581)	0.548

```
51   4.25     1.90      0.682          0.098    (  0.614)        0.584
52   4.33     2.00      0.718          0.098    (  0.646)        0.620
53   4.42     2.10      0.753          0.098    (  0.678)        0.656
54   4.50     2.10      0.753          0.098    (  0.678)        0.656
55   4.58     2.20      0.789          0.098    (  0.710)        0.692
56   4.67     2.30      0.825          0.098    (  0.743)        0.728
57   4.75     2.40      0.861          0.098    (  0.775)        0.763
58   4.83     2.40      0.861          0.098    (  0.775)        0.763
59   4.92     2.50      0.897          0.098    (  0.807)        0.799
60   5.00     2.60      0.933          0.098    (  0.840)        0.835
61   5.08     3.10      1.112          0.098    (  1.001)        1.015
62   5.17     3.60      1.292          0.098    (  1.163)        1.194
63   5.25     3.90      1.399          0.098    (  1.259)        1.302
64   5.33     4.20      1.507          0.098    (  1.356)        1.409
65   5.42     4.70      1.686          0.098    (  1.518)        1.589
66   5.50     5.60      2.009          0.098    (  1.808)        1.912
67   5.58     1.90      0.682          0.098    (  0.614)        0.584
68   5.67     0.90      0.323          0.098    (  0.291)        0.225
69   5.75     0.60      0.215          0.098    (  0.194)        0.118
70   5.83     0.50      0.179          0.098    (  0.161)        0.082
71   5.92     0.30      0.108    (     0.098)       0.097        0.011
72   6.00     0.20      0.072    (     0.098)       0.065        0.007
          (Loss Rate Not Used)
   Sum =     100.0                                  Sum =    28.9
    Flood volume = Effective rainfall      2.41(In)
     times area       1.4(Ac.)/[(In)/(Ft.)] =       0.3(Ac.Ft)
    Total soil loss =      0.58(In)
    Total soil loss =     0.066(Ac.Ft)
    Total rainfall =      2.99(In)
    Flood volume =       11794.4 Cubic Feet
    Total soil loss =        2858.1 Cubic Feet
    ---------------------------------------------------------------
     Peak flow rate of this hydrograph =      2.500(CFS)
    ---------------------------------------------------------------
    +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        6 - H O U R    S T O R M
                    R u n o f f      H y d r o g r a p h
    ---------------------------------------------------------------
```

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0 2.5 5.0 7.5 10.0
0+ 5	0.0006	0.09	Q
0+10	0.0016	0.15	Q
0+15	0.0027	0.16	Q
0+20	0.0038	0.16	Q
0+25	0.0049	0.16	Q
0+30	0.0063	0.20	Q
0+35	0.0077	0.21	QV
0+40	0.0092	0.21	QV
0+45	0.0106	0.21	QV
0+50	0.0120	0.21	QV
0+55	0.0135	0.21	QV
1+ 0	0.0152	0.25	Q V
1+ 5	0.0169	0.26	|QV
1+10	0.0187	0.26	|QV
1+15	0.0205	0.26	|Q V
1+20	0.0223	0.26	|Q V
1+25	0.0241	0.26	|Q V
1+30	0.0258	0.26	|Q V
1+35	0.0276	0.26	|Q V
1+40	0.0294	0.26	|Q V
1+45	0.0312	0.26	|Q V
1+50	0.0329	0.26	|Q V
1+55	0.0347	0.26	|Q V
2+ 0	0.0367	0.30	|Q V
2+ 5	0.0386	0.27	|Q V
2+10	0.0406	0.30	|Q V
2+15	0.0427	0.31	|Q V
2+20	0.0448	0.31	|Q V
2+25	0.0470	0.31	|Q V
2+30	0.0491	0.31	|Q V
2+35	0.0512	0.31	|Q V
2+40	0.0533	0.31	|Q V
2+45	0.0557	0.34	|Q V



2+50	0.0581	0.36	
2+55	0.0606	0.36	
3+ 0	0.0630	0.36	
3+ 5	0.0655	0.36	
3+10	0.0682	0.39	
3+15	0.0709	0.40	
3+20	0.0737	0.40	
3+25	0.0768	0.44	
3+30	0.0802	0.49	
3+35	0.0839	0.54	
3+40	0.0877	0.55	
3+45	0.0917	0.59	
3+50	0.0958	0.60	
3+55	0.1002	0.64	
4+ 0	0.1047	0.65	
4+ 5	0.1094	0.69	
4+10	0.1145	0.73	
4+15	0.1199	0.78	
4+20	0.1256	0.83	
4+25	0.1317	0.88	
4+30	0.1378	0.89	
4+35	0.1442	0.93	
4+40	0.1510	0.98	
4+45	0.1581	1.03	
4+50	0.1652	1.04	
4+55	0.1726	1.08	
5+ 0	0.1804	1.13	
5+ 5	0.1895	1.32	
5+10	0.2003	1.57	
5+15	0.2123	1.74	
5+20	0.2253	1.88	
5+25	0.2398	2.11	
5+30	0.2570	2.50	
5+35	0.2653	1.21	
5+40	0.2682	0.42	
5+45	0.2696	0.19	
5+50	0.2704	0.12	
5+55	0.2707	0.04	

```
    6+ 0       0.2707      0.01  Q          |          |          |         V|
    6+ 5       0.2708      0.00  Q          |          |          |          V
-------------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

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Study date 01/02/23 File: VT1224100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

DMA 12- 100 YR, 24-hr

Drainage Area = 1.35(Ac.) = 0.002 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.35(Ac.) = 0.002 Sq. Mi.
Length along longest watercourse = 210.00(Ft.)
Length along longest watercourse measured to centroid = 105.00(Ft.)
Length along longest watercourse = 0.040 Mi.
Length along longest watercourse measured to centroid = 0.020 Mi.
Difference in elevation = 1.00(Ft.)
Slope along watercourse = 25.1429 Ft./Mi.

```
Average Manning's 'N' = 0.015
Lag time =    0.013 Hr.
Lag time =     0.78 Min.
25% of lag time =     0.19 Min.
40% of lag time =     0.31 Min.
Unit time =     5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.35             2.06                 2.78

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        1.35             5.39                 7.28

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    2.060(In)
Area Averaged 100-Year Rainfall =    5.390(In)

Point rain (area averaged) =    5.390(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    5.390(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     1.350           69.00         0.820
 Total Area Entered =      1.35(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
69.0  69.0      0.373     0.820        0.098       1.000      0.098
```

Sum (F) = 0.098

Area averaged mean soil loss (F) (In/Hr) = 0.098
Minimum soil loss rate ((In/Hr)) = 0.049
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	644.617	76.827	1.045
2	0.167	1289.233	23.173	0.315
		Sum = 100.000	Sum=	1.361

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.043	(0.173)	0.039	0.004
2	0.17	0.07	0.043	(0.172)	0.039	0.004
3	0.25	0.07	0.043	(0.172)	0.039	0.004
4	0.33	0.10	0.065	(0.171)	0.058	0.006
5	0.42	0.10	0.065	(0.170)	0.058	0.006
6	0.50	0.10	0.065	(0.170)	0.058	0.006
7	0.58	0.10	0.065	(0.169)	0.058	0.006
8	0.67	0.10	0.065	(0.168)	0.058	0.006
9	0.75	0.10	0.065	(0.168)	0.058	0.006
10	0.83	0.13	0.086	(0.167)	0.078	0.009
11	0.92	0.13	0.086	(0.167)	0.078	0.009
12	1.00	0.13	0.086	(0.166)	0.078	0.009

13	1.08	0.10	0.065	(0.165)	0.058	0.006
14	1.17	0.10	0.065	(0.165)	0.058	0.006
15	1.25	0.10	0.065	(0.164)	0.058	0.006
16	1.33	0.10	0.065	(0.163)	0.058	0.006
17	1.42	0.10	0.065	(0.163)	0.058	0.006
18	1.50	0.10	0.065	(0.162)	0.058	0.006
19	1.58	0.10	0.065	(0.161)	0.058	0.006
20	1.67	0.10	0.065	(0.161)	0.058	0.006
21	1.75	0.10	0.065	(0.160)	0.058	0.006
22	1.83	0.13	0.086	(0.159)	0.078	0.009
23	1.92	0.13	0.086	(0.159)	0.078	0.009
24	2.00	0.13	0.086	(0.158)	0.078	0.009
25	2.08	0.13	0.086	(0.157)	0.078	0.009
26	2.17	0.13	0.086	(0.157)	0.078	0.009
27	2.25	0.13	0.086	(0.156)	0.078	0.009
28	2.33	0.13	0.086	(0.156)	0.078	0.009
29	2.42	0.13	0.086	(0.155)	0.078	0.009
30	2.50	0.13	0.086	(0.154)	0.078	0.009
31	2.58	0.17	0.108	(0.154)	0.097	0.011
32	2.67	0.17	0.108	(0.153)	0.097	0.011
33	2.75	0.17	0.108	(0.152)	0.097	0.011
34	2.83	0.17	0.108	(0.152)	0.097	0.011
35	2.92	0.17	0.108	(0.151)	0.097	0.011
36	3.00	0.17	0.108	(0.150)	0.097	0.011
37	3.08	0.17	0.108	(0.150)	0.097	0.011
38	3.17	0.17	0.108	(0.149)	0.097	0.011
39	3.25	0.17	0.108	(0.149)	0.097	0.011
40	3.33	0.17	0.108	(0.148)	0.097	0.011
41	3.42	0.17	0.108	(0.147)	0.097	0.011
42	3.50	0.17	0.108	(0.147)	0.097	0.011
43	3.58	0.17	0.108	(0.146)	0.097	0.011
44	3.67	0.17	0.108	(0.146)	0.097	0.011
45	3.75	0.17	0.108	(0.145)	0.097	0.011
46	3.83	0.20	0.129	(0.144)	0.116	0.013
47	3.92	0.20	0.129	(0.144)	0.116	0.013
48	4.00	0.20	0.129	(0.143)	0.116	0.013
49	4.08	0.20	0.129	(0.142)	0.116	0.013
50	4.17	0.20	0.129	(0.142)	0.116	0.013

51	4.25	0.20	0.129	(0.141)	0.116	0.013
52	4.33	0.23	0.151	(0.141)	0.136	0.015
53	4.42	0.23	0.151	(0.140)	0.136	0.015
54	4.50	0.23	0.151	(0.139)	0.136	0.015
55	4.58	0.23	0.151	(0.139)	0.136	0.015
56	4.67	0.23	0.151	(0.138)	0.136	0.015
57	4.75	0.23	0.151	(0.138)	0.136	0.015
58	4.83	0.27	0.172	0.137	(0.155)	0.035
59	4.92	0.27	0.172	0.137	(0.155)	0.036
60	5.00	0.27	0.172	0.136	(0.155)	0.037
61	5.08	0.20	0.129	(0.135)	0.116	0.013
62	5.17	0.20	0.129	(0.135)	0.116	0.013
63	5.25	0.20	0.129	(0.134)	0.116	0.013
64	5.33	0.23	0.151	0.134	(0.136)	0.017
65	5.42	0.23	0.151	0.133	(0.136)	0.018
66	5.50	0.23	0.151	0.132	(0.136)	0.019
67	5.58	0.27	0.172	0.132	(0.155)	0.041
68	5.67	0.27	0.172	0.131	(0.155)	0.041
69	5.75	0.27	0.172	0.131	(0.155)	0.042
70	5.83	0.27	0.172	0.130	(0.155)	0.042
71	5.92	0.27	0.172	0.130	(0.155)	0.043
72	6.00	0.27	0.172	0.129	(0.155)	0.044
73	6.08	0.30	0.194	0.128	(0.175)	0.066
74	6.17	0.30	0.194	0.128	(0.175)	0.066
75	6.25	0.30	0.194	0.127	(0.175)	0.067
76	6.33	0.30	0.194	0.127	(0.175)	0.067
77	6.42	0.30	0.194	0.126	(0.175)	0.068
78	6.50	0.30	0.194	0.126	(0.175)	0.069
79	6.58	0.33	0.216	0.125	(0.194)	0.091
80	6.67	0.33	0.216	0.124	(0.194)	0.091
81	6.75	0.33	0.216	0.124	(0.194)	0.092
82	6.83	0.33	0.216	0.123	(0.194)	0.092
83	6.92	0.33	0.216	0.123	(0.194)	0.093
84	7.00	0.33	0.216	0.122	(0.194)	0.093
85	7.08	0.33	0.216	0.122	(0.194)	0.094
86	7.17	0.33	0.216	0.121	(0.194)	0.095
87	7.25	0.33	0.216	0.120	(0.194)	0.095
88	7.33	0.37	0.237	0.120	(0.213)	0.117

89	7.42	0.37	0.237	0.119	(0.213)	0.118
90	7.50	0.37	0.237	0.119	(0.213)	0.118
91	7.58	0.40	0.259	0.118	(0.233)	0.140
92	7.67	0.40	0.259	0.118	(0.233)	0.141
93	7.75	0.40	0.259	0.117	(0.233)	0.142
94	7.83	0.43	0.280	0.117	(0.252)	0.164
95	7.92	0.43	0.280	0.116	(0.252)	0.164
96	8.00	0.43	0.280	0.116	(0.252)	0.165
97	8.08	0.50	0.323	0.115	(0.291)	0.208
98	8.17	0.50	0.323	0.115	(0.291)	0.209
99	8.25	0.50	0.323	0.114	(0.291)	0.209
100	8.33	0.50	0.323	0.113	(0.291)	0.210
101	8.42	0.50	0.323	0.113	(0.291)	0.210
102	8.50	0.50	0.323	0.112	(0.291)	0.211
103	8.58	0.53	0.345	0.112	(0.310)	0.233
104	8.67	0.53	0.345	0.111	(0.310)	0.234
105	8.75	0.53	0.345	0.111	(0.310)	0.234
106	8.83	0.57	0.367	0.110	(0.330)	0.256
107	8.92	0.57	0.367	0.110	(0.330)	0.257
108	9.00	0.57	0.367	0.109	(0.330)	0.257
109	9.08	0.63	0.410	0.109	(0.369)	0.301
110	9.17	0.63	0.410	0.108	(0.369)	0.301
111	9.25	0.63	0.410	0.108	(0.369)	0.302
112	9.33	0.67	0.431	0.107	(0.388)	0.324
113	9.42	0.67	0.431	0.107	(0.388)	0.325
114	9.50	0.67	0.431	0.106	(0.388)	0.325
115	9.58	0.70	0.453	0.106	(0.407)	0.347
116	9.67	0.70	0.453	0.105	(0.407)	0.348
117	9.75	0.70	0.453	0.105	(0.407)	0.348
118	9.83	0.73	0.474	0.104	(0.427)	0.370
119	9.92	0.73	0.474	0.104	(0.427)	0.371
120	10.00	0.73	0.474	0.103	(0.427)	0.371
121	10.08	0.50	0.323	0.103	(0.291)	0.221
122	10.17	0.50	0.323	0.102	(0.291)	0.221
123	10.25	0.50	0.323	0.102	(0.291)	0.222
124	10.33	0.50	0.323	0.101	(0.291)	0.222
125	10.42	0.50	0.323	0.101	(0.291)	0.223
126	10.50	0.50	0.323	0.100	(0.291)	0.223

127	10.58	0.67	0.431	0.100	(	0.388)	0.332
128	10.67	0.67	0.431	0.099	(	0.388)	0.332
129	10.75	0.67	0.431	0.099	(	0.388)	0.332
130	10.83	0.67	0.431	0.098	(	0.388)	0.333
131	10.92	0.67	0.431	0.098	(	0.388)	0.333
132	11.00	0.67	0.431	0.097	(	0.388)	0.334
133	11.08	0.63	0.410	0.097	(	0.369)	0.313
134	11.17	0.63	0.410	0.096	(	0.369)	0.313
135	11.25	0.63	0.410	0.096	(	0.369)	0.314
136	11.33	0.63	0.410	0.095	(	0.369)	0.314
137	11.42	0.63	0.410	0.095	(	0.369)	0.315
138	11.50	0.63	0.410	0.094	(	0.369)	0.315
139	11.58	0.57	0.367	0.094	(	0.330)	0.273
140	11.67	0.57	0.367	0.093	(	0.330)	0.273
141	11.75	0.57	0.367	0.093	(	0.330)	0.273
142	11.83	0.60	0.388	0.093	(	0.349)	0.296
143	11.92	0.60	0.388	0.092	(	0.349)	0.296
144	12.00	0.60	0.388	0.092	(	0.349)	0.296
145	12.08	0.83	0.539	0.091	(	0.485)	0.448
146	12.17	0.83	0.539	0.091	(	0.485)	0.448
147	12.25	0.83	0.539	0.090	(	0.485)	0.449
148	12.33	0.87	0.561	0.090	(	0.505)	0.471
149	12.42	0.87	0.561	0.089	(	0.505)	0.471
150	12.50	0.87	0.561	0.089	(	0.505)	0.472
151	12.58	0.93	0.604	0.088	(	0.543)	0.515
152	12.67	0.93	0.604	0.088	(	0.543)	0.516
153	12.75	0.93	0.604	0.088	(	0.543)	0.516
154	12.83	0.97	0.625	0.087	(	0.563)	0.538
155	12.92	0.97	0.625	0.087	(	0.563)	0.539
156	13.00	0.97	0.625	0.086	(	0.563)	0.539
157	13.08	1.13	0.733	0.086	(	0.660)	0.647
158	13.17	1.13	0.733	0.085	(	0.660)	0.648
159	13.25	1.13	0.733	0.085	(	0.660)	0.648
160	13.33	1.13	0.733	0.085	(	0.660)	0.649
161	13.42	1.13	0.733	0.084	(	0.660)	0.649
162	13.50	1.13	0.733	0.084	(	0.660)	0.649
163	13.58	0.77	0.496	0.083	(	0.446)	0.413
164	13.67	0.77	0.496	0.083	(	0.446)	0.413

165	13.75	0.77	0.496	0.082	(0.446)	0.413
166	13.83	0.77	0.496	0.082	(0.446)	0.414
167	13.92	0.77	0.496	0.082	(0.446)	0.414
168	14.00	0.77	0.496	0.081	(0.446)	0.415
169	14.08	0.90	0.582	0.081	(0.524)	0.501
170	14.17	0.90	0.582	0.080	(0.524)	0.502
171	14.25	0.90	0.582	0.080	(0.524)	0.502
172	14.33	0.87	0.561	0.079	(0.505)	0.481
173	14.42	0.87	0.561	0.079	(0.505)	0.481
174	14.50	0.87	0.561	0.079	(0.505)	0.482
175	14.58	0.87	0.561	0.078	(0.505)	0.482
176	14.67	0.87	0.561	0.078	(0.505)	0.483
177	14.75	0.87	0.561	0.077	(0.505)	0.483
178	14.83	0.83	0.539	0.077	(0.485)	0.462
179	14.92	0.83	0.539	0.077	(0.485)	0.462
180	15.00	0.83	0.539	0.076	(0.485)	0.463
181	15.08	0.80	0.517	0.076	(0.466)	0.442
182	15.17	0.80	0.517	0.076	(0.466)	0.442
183	15.25	0.80	0.517	0.075	(0.466)	0.442
184	15.33	0.77	0.496	0.075	(0.446)	0.421
185	15.42	0.77	0.496	0.074	(0.446)	0.422
186	15.50	0.77	0.496	0.074	(0.446)	0.422
187	15.58	0.63	0.410	0.074	(0.369)	0.336
188	15.67	0.63	0.410	0.073	(0.369)	0.336
189	15.75	0.63	0.410	0.073	(0.369)	0.337
190	15.83	0.63	0.410	0.072	(0.369)	0.337
191	15.92	0.63	0.410	0.072	(0.369)	0.338
192	16.00	0.63	0.410	0.072	(0.369)	0.338
193	16.08	0.13	0.086	0.071	(0.078)	0.015
194	16.17	0.13	0.086	0.071	(0.078)	0.015
195	16.25	0.13	0.086	0.071	(0.078)	0.016
196	16.33	0.13	0.086	0.070	(0.078)	0.016
197	16.42	0.13	0.086	0.070	(0.078)	0.016
198	16.50	0.13	0.086	0.070	(0.078)	0.017
199	16.58	0.10	0.065	(0.069)	0.058	0.006
200	16.67	0.10	0.065	(0.069)	0.058	0.006
201	16.75	0.10	0.065	(0.069)	0.058	0.006
202	16.83	0.10	0.065	(0.068)	0.058	0.006

203	16.92	0.10	0.065	(0.068)	0.058	0.006
204	17.00	0.10	0.065	(0.067)	0.058	0.006
205	17.08	0.17	0.108	0.067	(0.097)	0.041
206	17.17	0.17	0.108	0.067	(0.097)	0.041
207	17.25	0.17	0.108	0.066	(0.097)	0.041
208	17.33	0.17	0.108	0.066	(0.097)	0.042
209	17.42	0.17	0.108	0.066	(0.097)	0.042
210	17.50	0.17	0.108	0.065	(0.097)	0.042
211	17.58	0.17	0.108	0.065	(0.097)	0.043
212	17.67	0.17	0.108	0.065	(0.097)	0.043
213	17.75	0.17	0.108	0.064	(0.097)	0.043
214	17.83	0.13	0.086	0.064	(0.078)	0.022
215	17.92	0.13	0.086	0.064	(0.078)	0.022
216	18.00	0.13	0.086	0.064	(0.078)	0.023
217	18.08	0.13	0.086	0.063	(0.078)	0.023
218	18.17	0.13	0.086	0.063	(0.078)	0.023
219	18.25	0.13	0.086	0.063	(0.078)	0.024
220	18.33	0.13	0.086	0.062	(0.078)	0.024
221	18.42	0.13	0.086	0.062	(0.078)	0.024
222	18.50	0.13	0.086	0.062	(0.078)	0.025
223	18.58	0.10	0.065	(0.061)	0.058	0.006
224	18.67	0.10	0.065	(0.061)	0.058	0.006
225	18.75	0.10	0.065	(0.061)	0.058	0.006
226	18.83	0.07	0.043	(0.061)	0.039	0.004
227	18.92	0.07	0.043	(0.060)	0.039	0.004
228	19.00	0.07	0.043	(0.060)	0.039	0.004
229	19.08	0.10	0.065	(0.060)	0.058	0.006
230	19.17	0.10	0.065	(0.059)	0.058	0.006
231	19.25	0.10	0.065	(0.059)	0.058	0.006
232	19.33	0.13	0.086	0.059	(0.078)	0.027
233	19.42	0.13	0.086	0.059	(0.078)	0.028
234	19.50	0.13	0.086	0.058	(0.078)	0.028
235	19.58	0.10	0.065	0.058	(0.058)	0.007
236	19.67	0.10	0.065	0.058	(0.058)	0.007
237	19.75	0.10	0.065	0.057	(0.058)	0.007
238	19.83	0.07	0.043	(0.057)	0.039	0.004
239	19.92	0.07	0.043	(0.057)	0.039	0.004
240	20.00	0.07	0.043	(0.057)	0.039	0.004

241	20.08	0.10	0.065	0.056	(0.058)	0.008
242	20.17	0.10	0.065	0.056	(0.058)	0.008
243	20.25	0.10	0.065	0.056	(0.058)	0.009
244	20.33	0.10	0.065	0.056	(0.058)	0.009
245	20.42	0.10	0.065	0.055	(0.058)	0.009
246	20.50	0.10	0.065	0.055	(0.058)	0.009
247	20.58	0.10	0.065	0.055	(0.058)	0.010
248	20.67	0.10	0.065	0.055	(0.058)	0.010
249	20.75	0.10	0.065	0.055	(0.058)	0.010
250	20.83	0.07	0.043	(0.054)	0.039	0.004
251	20.92	0.07	0.043	(0.054)	0.039	0.004
252	21.00	0.07	0.043	(0.054)	0.039	0.004
253	21.08	0.10	0.065	0.054	(0.058)	0.011
254	21.17	0.10	0.065	0.053	(0.058)	0.011
255	21.25	0.10	0.065	0.053	(0.058)	0.011
256	21.33	0.07	0.043	(0.053)	0.039	0.004
257	21.42	0.07	0.043	(0.053)	0.039	0.004
258	21.50	0.07	0.043	(0.053)	0.039	0.004
259	21.58	0.10	0.065	0.052	(0.058)	0.012
260	21.67	0.10	0.065	0.052	(0.058)	0.012
261	21.75	0.10	0.065	0.052	(0.058)	0.013
262	21.83	0.07	0.043	(0.052)	0.039	0.004
263	21.92	0.07	0.043	(0.052)	0.039	0.004
264	22.00	0.07	0.043	(0.052)	0.039	0.004
265	22.08	0.10	0.065	0.051	(0.058)	0.013
266	22.17	0.10	0.065	0.051	(0.058)	0.013
267	22.25	0.10	0.065	0.051	(0.058)	0.014
268	22.33	0.07	0.043	(0.051)	0.039	0.004
269	22.42	0.07	0.043	(0.051)	0.039	0.004
270	22.50	0.07	0.043	(0.051)	0.039	0.004
271	22.58	0.07	0.043	(0.050)	0.039	0.004
272	22.67	0.07	0.043	(0.050)	0.039	0.004
273	22.75	0.07	0.043	(0.050)	0.039	0.004
274	22.83	0.07	0.043	(0.050)	0.039	0.004
275	22.92	0.07	0.043	(0.050)	0.039	0.004
276	23.00	0.07	0.043	(0.050)	0.039	0.004
277	23.08	0.07	0.043	(0.050)	0.039	0.004
278	23.17	0.07	0.043	(0.050)	0.039	0.004

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279  23.25     0.07      0.043       (  0.049)       0.039        0.004
280  23.33     0.07      0.043       (  0.049)       0.039        0.004
281  23.42     0.07      0.043       (  0.049)       0.039        0.004
282  23.50     0.07      0.043       (  0.049)       0.039        0.004
283  23.58     0.07      0.043       (  0.049)       0.039        0.004
284  23.67     0.07      0.043       (  0.049)       0.039        0.004
285  23.75     0.07      0.043       (  0.049)       0.039        0.004
286  23.83     0.07      0.043       (  0.049)       0.039        0.004
287  23.92     0.07      0.043       (  0.049)       0.039        0.004
288  24.00     0.07      0.043       (  0.049)       0.039        0.004
          (Loss Rate Not Used)
    Sum =     100.0                                    Sum =    41.1
     Flood volume = Effective rainfall      3.42(In)
      times area       1.4(Ac.)/[(In)/(Ft.)] =       0.4(Ac.Ft)
     Total soil loss =      1.97(In)
     Total soil loss =     0.221(Ac.Ft)
     Total rainfall =      5.39(In)
     Flood volume =       16779.5 Cubic Feet
     Total soil loss =        9634.1 Cubic Feet
     ---------------------------------------------------------------------
      Peak flow rate of this hydrograph =      0.884(CFS)
     ---------------------------------------------------------------------
     +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                         24 - H O U R    S T O R M
                    R u n o f f      H y d r o g r a p h
     ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

     ---------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
 ------------------------------------------------------------------------
   0+ 5       0.0000      0.00  Q         |         |         |         |
   0+10       0.0001      0.01  Q         |         |         |         |
   0+15       0.0001      0.01  Q         |         |         |         |
   0+20       0.0002      0.01  Q         |         |         |         |
   0+25       0.0002      0.01  Q         |         |         |         |
   0+30       0.0003      0.01  Q         |         |         |         |
   0+35       0.0003      0.01  Q         |         |         |         |
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0+40	0.0004	0.01	Q				
0+45	0.0005	0.01	Q				
0+50	0.0005	0.01	Q				
0+55	0.0006	0.01	Q				
1+ 0	0.0007	0.01	Q				
1+ 5	0.0008	0.01	Q				
1+10	0.0008	0.01	Q				
1+15	0.0009	0.01	Q				
1+20	0.0010	0.01	Q				
1+25	0.0010	0.01	Q				
1+30	0.0011	0.01	Q				
1+35	0.0011	0.01	Q				
1+40	0.0012	0.01	Q				
1+45	0.0013	0.01	Q				
1+50	0.0013	0.01	Q				
1+55	0.0014	0.01	Q				
2+ 0	0.0015	0.01	Q				
2+ 5	0.0016	0.01	Q				
2+10	0.0017	0.01	Q				
2+15	0.0017	0.01	Q				
2+20	0.0018	0.01	Q				
2+25	0.0019	0.01	Q				
2+30	0.0020	0.01	Q				
2+35	0.0021	0.01	Q				
2+40	0.0022	0.01	Q				
2+45	0.0023	0.01	Q				
2+50	0.0024	0.01	Q				
2+55	0.0025	0.01	Q				
3+ 0	0.0026	0.01	Q				
3+ 5	0.0027	0.01	Q				
3+10	0.0028	0.01	Q				
3+15	0.0029	0.01	Q				
3+20	0.0030	0.01	Q				
3+25	0.0031	0.01	Q				
3+30	0.0032	0.01	Q				
3+35	0.0033	0.01	Q				
3+40	0.0034	0.01	Q				
3+45	0.0035	0.01	Q				

3+50	0.0036	0.02	Q				
3+55	0.0037	0.02	Q				
4+ 0	0.0039	0.02	Q				
4+ 5	0.0040	0.02	Q				
4+10	0.0041	0.02	Q				
4+15	0.0042	0.02	Q				
4+20	0.0044	0.02	Q				
4+25	0.0045	0.02	Q				
4+30	0.0046	0.02	Q				
4+35	0.0048	0.02	Q				
4+40	0.0049	0.02	Q				
4+45	0.0051	0.02	Q				
4+50	0.0053	0.04	Q				
4+55	0.0057	0.05	Q				
5+ 0	0.0060	0.05	Q				
5+ 5	0.0062	0.03	Q				
5+10	0.0063	0.02	Q				
5+15	0.0064	0.02	Q				
5+20	0.0066	0.02	Q				
5+25	0.0068	0.02	Q				
5+30	0.0069	0.03	Q				
5+35	0.0073	0.05	Q				
5+40	0.0077	0.06	Q				
5+45	0.0080	0.06	Q				
5+50	0.0084	0.06	Q				
5+55	0.0088	0.06	Q				
6+ 0	0.0092	0.06	Q				
6+ 5	0.0098	0.08	QV				
6+10	0.0104	0.09	QV				
6+15	0.0111	0.09	QV				
6+20	0.0117	0.09	QV				
6+25	0.0123	0.09	QV				
6+30	0.0130	0.09	QV				
6+35	0.0138	0.12	QV				
6+40	0.0146	0.12	QV				
6+45	0.0155	0.12	QV				
6+50	0.0163	0.13	QV				
6+55	0.0172	0.13	QV				

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 7+ 0       0.0181      0.13  QV        |         |         |         |
 7+ 5       0.0190      0.13  QV        |         |         |         |
 7+10       0.0199      0.13  Q V       |         |         |         |
 7+15       0.0207      0.13  Q V       |         |         |         |
 7+20       0.0218      0.15  Q V       |         |         |         |
 7+25       0.0229      0.16  Q V       |         |         |         |
 7+30       0.0240      0.16  Q V       |         |         |         |
 7+35       0.0253      0.18  Q V       |         |         |         |
 7+40       0.0266      0.19  Q V       |         |         |         |
 7+45       0.0279      0.19  Q V       |         |         |         |
 7+50       0.0294      0.22  Q  V      |         |         |         |
 7+55       0.0309      0.22  Q  V      |         |         |         |
 8+ 0       0.0325      0.22  Q  V      |         |         |         |
 8+ 5       0.0343      0.27  |Q V      |         |         |         |
 8+10       0.0363      0.28  |Q V      |         |         |         |
 8+15       0.0383      0.28  |Q V      |         |         |         |
 8+20       0.0402      0.29  |Q  V     |         |         |         |
 8+25       0.0422      0.29  |Q  V     |         |         |         |
 8+30       0.0442      0.29  |Q  V     |         |         |         |
 8+35       0.0463      0.31  |Q  V     |         |         |         |
 8+40       0.0485      0.32  |Q   V    |         |         |         |
 8+45       0.0507      0.32  |Q   V    |         |         |         |
 8+50       0.0531      0.34  |Q   V    |         |         |         |
 8+55       0.0555      0.35  |Q   V    |         |         |         |
 9+ 0       0.0579      0.35  |Q    V   |         |         |         |
 9+ 5       0.0606      0.40  |Q    V   |         |         |         |
 9+10       0.0634      0.41  |Q    V   |         |         |         |
 9+15       0.0663      0.41  |Q    V   |         |         |         |
 9+20       0.0692      0.43  |Q     V  |         |         |         |
 9+25       0.0723      0.44  |Q     V  |         |         |         |
 9+30       0.0753      0.44  |Q     V  |         |         |         |
 9+35       0.0785      0.47  |Q      V |         |         |         |
 9+40       0.0818      0.47  |Q      V |         |         |         |
 9+45       0.0851      0.47  |Q      V |         |         |         |
 9+50       0.0885      0.50  |Q       V|         |         |         |
 9+55       0.0920      0.50  | Q      V|         |         |         |
10+ 0       0.0954      0.51  | Q      V|         |         |         |
10+ 5       0.0978      0.35  |Q        V         |         |         |
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10+10       0.0999      0.30  |Q        V         |         |         |
10+15       0.1020      0.30  |Q        V         |         |         |
10+20       0.1041      0.30  |Q        V         |         |         |
10+25       0.1062      0.30  |Q        |V        |         |         |
10+30       0.1082      0.30  |Q        |V        |         |         |
10+35       0.1111      0.42  |Q        |V        |         |         |
10+40       0.1142      0.45  |Q        |V        |         |         |
10+45       0.1173      0.45  |Q        | V       |         |         |
10+50       0.1205      0.45  |Q        | V       |         |         |
10+55       0.1236      0.45  |Q        | V       |         |         |
11+ 0       0.1267      0.45  |Q        |  V      |         |         |
11+ 5       0.1297      0.43  |Q        |  V      |         |         |
11+10       0.1326      0.43  |Q        |  V      |         |         |
11+15       0.1356      0.43  |Q        |   V     |         |         |
11+20       0.1385      0.43  |Q        |   V     |         |         |
11+25       0.1415      0.43  |Q        |   V     |         |         |
11+30       0.1444      0.43  |Q        |   V     |         |         |
11+35       0.1471      0.38  |Q        |    V    |         |         |
11+40       0.1496      0.37  |Q        |    V    |         |         |
11+45       0.1522      0.37  |Q        |    V    |         |         |
11+50       0.1549      0.40  |Q        |     V   |         |         |
11+55       0.1577      0.40  |Q        |     V   |         |         |
12+ 0       0.1605      0.40  |Q        |     V   |         |         |
12+ 5       0.1643      0.56  | Q       |      V  |         |         |
12+10       0.1685      0.61  | Q       |      V  |         |         |
12+15       0.1727      0.61  | Q       |      V  |         |         |
12+20       0.1771      0.63  | Q       |       V |         |         |
12+25       0.1815      0.64  | Q       |       V |         |         |
12+30       0.1859      0.64  | Q       |        V|         |         |
12+35       0.1907      0.69  | Q       |        V|         |         |
12+40       0.1955      0.70  | Q       |         V         |         |
12+45       0.2004      0.70  | Q       |         V         |         |
12+50       0.2053      0.73  | Q       |         |V        |         |
12+55       0.2104      0.73  | Q       |         |V        |         |
13+ 0       0.2154      0.73  | Q       |         | V       |         |
13+ 5       0.2213      0.85  |  Q      |         | V       |         |
13+10       0.2274      0.88  |  Q      |         |  V      |         |
13+15       0.2334      0.88  |  Q      |         |   V     |         |
```

```
13+20       0.2395      0.88  |  Q       |          |   V      |          |
13+25       0.2456      0.88  |  Q       |          |    V     |          |
13+30       0.2517      0.88  |  Q       |          |     V    |          |
13+35       0.2561      0.64  | Q        |          |     V    |          |
13+40       0.2599      0.56  | Q        |          |     V    |          |
13+45       0.2638      0.56  | Q        |          |      V   |          |
13+50       0.2677      0.56  | Q        |          |      V   |          |
13+55       0.2716      0.56  | Q        |          |       V  |          |
14+ 0       0.2755      0.56  | Q        |          |       V  |          |
14+ 5       0.2800      0.66  | Q        |          |        V |          |
14+10       0.2847      0.68  | Q        |          |        V |          |
14+15       0.2894      0.68  | Q        |          |         V          |
14+20       0.2939      0.66  | Q        |          |         V          |
14+25       0.2984      0.66  | Q        |          |         V          |
14+30       0.3030      0.66  | Q        |          |          |V         |
14+35       0.3075      0.66  | Q        |          |          |V         |
14+40       0.3120      0.66  | Q        |          |          | V        |
14+45       0.3165      0.66  | Q        |          |          | V        |
14+50       0.3209      0.64  | Q        |          |          |  V       |
14+55       0.3252      0.63  | Q        |          |          |  V       |
15+ 0       0.3296      0.63  | Q        |          |          |   V      |
15+ 5       0.3338      0.61  | Q        |          |          |   V      |
15+10       0.3379      0.60  | Q        |          |          |    V     |
15+15       0.3421      0.60  | Q        |          |          |    V     |
15+20       0.3461      0.58  | Q        |          |          |    V     |
15+25       0.3500      0.57  | Q        |          |          |     V    |
15+30       0.3540      0.57  | Q        |          |          |     V    |
15+35       0.3573      0.48  |Q         |          |          |      V   |
15+40       0.3604      0.46  |Q         |          |          |      V   |
15+45       0.3636      0.46  |Q         |          |          |      V   |
15+50       0.3668      0.46  |Q         |          |          |       V  |
15+55       0.3699      0.46  |Q         |          |          |       V  |
16+ 0       0.3731      0.46  |Q         |          |          |       V  |
16+ 5       0.3739      0.12  Q          |          |          |       V  |
16+10       0.3741      0.02  Q          |          |          |       V  |
16+15       0.3742      0.02  Q          |          |          |       V  |
16+20       0.3744      0.02  Q          |          |          |       V  |
16+25       0.3745      0.02  Q          |          |          |       V  |
```

16+30	0.3747	0.02	Q	|	|	|	V |
16+35	0.3748	0.01	Q	|	|	|	V |
16+40	0.3748	0.01	Q	|	|	|	V |
16+45	0.3749	0.01	Q	|	|	|	V |
16+50	0.3749	0.01	Q	|	|	|	V |
16+55	0.3750	0.01	Q	|	|	|	V |
17+ 0	0.3751	0.01	Q	|	|	|	V |
17+ 5	0.3754	0.04	Q	|	|	|	V |
17+10	0.3758	0.06	Q	|	|	|	V|
17+15	0.3761	0.06	Q	|	|	|	V|
17+20	0.3765	0.06	Q	|	|	|	V|
17+25	0.3769	0.06	Q	|	|	|	V|
17+30	0.3773	0.06	Q	|	|	|	V|
17+35	0.3777	0.06	Q	|	|	|	V|
17+40	0.3781	0.06	Q	|	|	|	V|
17+45	0.3785	0.06	Q	|	|	|	V|
17+50	0.3788	0.04	Q	|	|	|	V|
17+55	0.3790	0.03	Q	|	|	|	V|
18+ 0	0.3792	0.03	Q	|	|	|	V|
18+ 5	0.3794	0.03	Q	|	|	|	V|
18+10	0.3796	0.03	Q	|	|	|	V|
18+15	0.3799	0.03	Q	|	|	|	V|
18+20	0.3801	0.03	Q	|	|	|	V|
18+25	0.3803	0.03	Q	|	|	|	V|
18+30	0.3805	0.03	Q	|	|	|	V|
18+35	0.3806	0.01	Q	|	|	|	V|
18+40	0.3807	0.01	Q	|	|	|	V|
18+45	0.3808	0.01	Q	|	|	|	V|
18+50	0.3808	0.01	Q	|	|	|	V|
18+55	0.3808	0.01	Q	|	|	|	V|
19+ 0	0.3809	0.01	Q	|	|	|	V|
19+ 5	0.3809	0.01	Q	|	|	|	V|
19+10	0.3810	0.01	Q	|	|	|	V|
19+15	0.3811	0.01	Q	|	|	|	V|
19+20	0.3813	0.03	Q	|	|	|	V|
19+25	0.3815	0.04	Q	|	|	|	V|
19+30	0.3818	0.04	Q	|	|	|	V|
19+35	0.3819	0.02	Q	|	|	|	V|

19+40	0.3820	0.01	Q	|	|	|	V|
19+45	0.3820	0.01	Q	|	|	|	V|
19+50	0.3821	0.01	Q	|	|	|	V|
19+55	0.3821	0.01	Q	|	|	|	V|
20+ 0	0.3822	0.01	Q	|	|	|	V|
20+ 5	0.3822	0.01	Q	|	|	|	V|
20+10	0.3823	0.01	Q	|	|	|	V|
20+15	0.3824	0.01	Q	|	|	|	V|
20+20	0.3825	0.01	Q	|	|	|	V|
20+25	0.3826	0.01	Q	|	|	|	V|
20+30	0.3827	0.01	Q	|	|	|	V|
20+35	0.3827	0.01	Q	|	|	|	V|
20+40	0.3828	0.01	Q	|	|	|	V|
20+45	0.3829	0.01	Q	|	|	|	V|
20+50	0.3830	0.01	Q	|	|	|	V|
20+55	0.3830	0.01	Q	|	|	|	V|
21+ 0	0.3831	0.01	Q	|	|	|	V|
21+ 5	0.3832	0.01	Q	|	|	|	V|
21+10	0.3833	0.02	Q	|	|	|	V|
21+15	0.3834	0.02	Q	|	|	|	V|
21+20	0.3834	0.01	Q	|	|	|	V|
21+25	0.3835	0.01	Q	|	|	|	V|
21+30	0.3835	0.01	Q	|	|	|	V|
21+35	0.3836	0.01	Q	|	|	|	V|
21+40	0.3837	0.02	Q	|	|	|	V|
21+45	0.3838	0.02	Q	|	|	|	V|
21+50	0.3839	0.01	Q	|	|	|	V|
21+55	0.3839	0.01	Q	|	|	|	V|
22+ 0	0.3840	0.01	Q	|	|	|	V|
22+ 5	0.3841	0.02	Q	|	|	|	V|
22+10	0.3842	0.02	Q	|	|	|	V|
22+15	0.3843	0.02	Q	|	|	|	V|
22+20	0.3844	0.01	Q	|	|	|	V|
22+25	0.3844	0.01	Q	|	|	|	V|
22+30	0.3845	0.01	Q	|	|	|	V|
22+35	0.3845	0.01	Q	|	|	|	V|
22+40	0.3845	0.01	Q	|	|	|	V|
22+45	0.3846	0.01	Q	|	|	|	V|

```
   22+50       0.3846      0.01  Q          |          |          |         V|
   22+55       0.3847      0.01  Q          |          |          |         V|
   23+ 0       0.3847      0.01  Q          |          |          |         V|
   23+ 5       0.3847      0.01  Q          |          |          |         V|
   23+10       0.3848      0.01  Q          |          |          |         V|
   23+15       0.3848      0.01  Q          |          |          |         V|
   23+20       0.3849      0.01  Q          |          |          |         V|
   23+25       0.3849      0.01  Q          |          |          |         V|
   23+30       0.3850      0.01  Q          |          |          |         V|
   23+35       0.3850      0.01  Q          |          |          |         V|
   23+40       0.3850      0.01  Q          |          |          |         V|
   23+45       0.3851      0.01  Q          |          |          |         V|
   23+50       0.3851      0.01  Q          |          |          |         V|
   23+55       0.3852      0.01  Q          |          |          |         V|
   24+ 0       0.3852      0.01  Q          |          |          |         V|
   24+ 5       0.3852      0.00  Q          |          |          |          V
---------------------------------------------------------------------------
```

WQMP WORKSHEETS

Santa Ana Watershed - BMP Design Volume, V_{BMP}

(Rev. 10-2011)

Legend: Required Entries / Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name	Christiansen & Company	Date	1/21/2022
Designed by	Keith Christiansen	Case No	
Company Project Number/Name	The Village at Junipero		

BMP Identification

BMP NAME / ID: DMA-1 - Contech Chambers

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

85th Percentile, 24-hour Rainfall Depth, from the Isohyetal Map in Handbook Appendix E

D_{85}= 0.61 inches

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
1	*312761*	*Mixed Surface Types*	*0.85*	*0.66*	*206819.2*			
	312761		***Total***		**206819.2**	**0.61**	***10513.3***	***12000***

Notes:

Santa Ana Watershed - BMP Design Volume, V_{BMP}

(Rev. 10-2011)

Legend: Required Entries / Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name	Christiansen & Company	Date	1/21/2022
Designed by	Keith Christiansen	Case No	
Company Project Number/Name	The Village at Junipero		

BMP Identification

BMP NAME / ID: DMA-2 - Contech Chambers

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

85th Percentile, 24-hour Rainfall Depth, from the Isohyetal Map in Handbook Appendix E

D_{85}= 0.61 inches

Drainage Management Area Tabulation

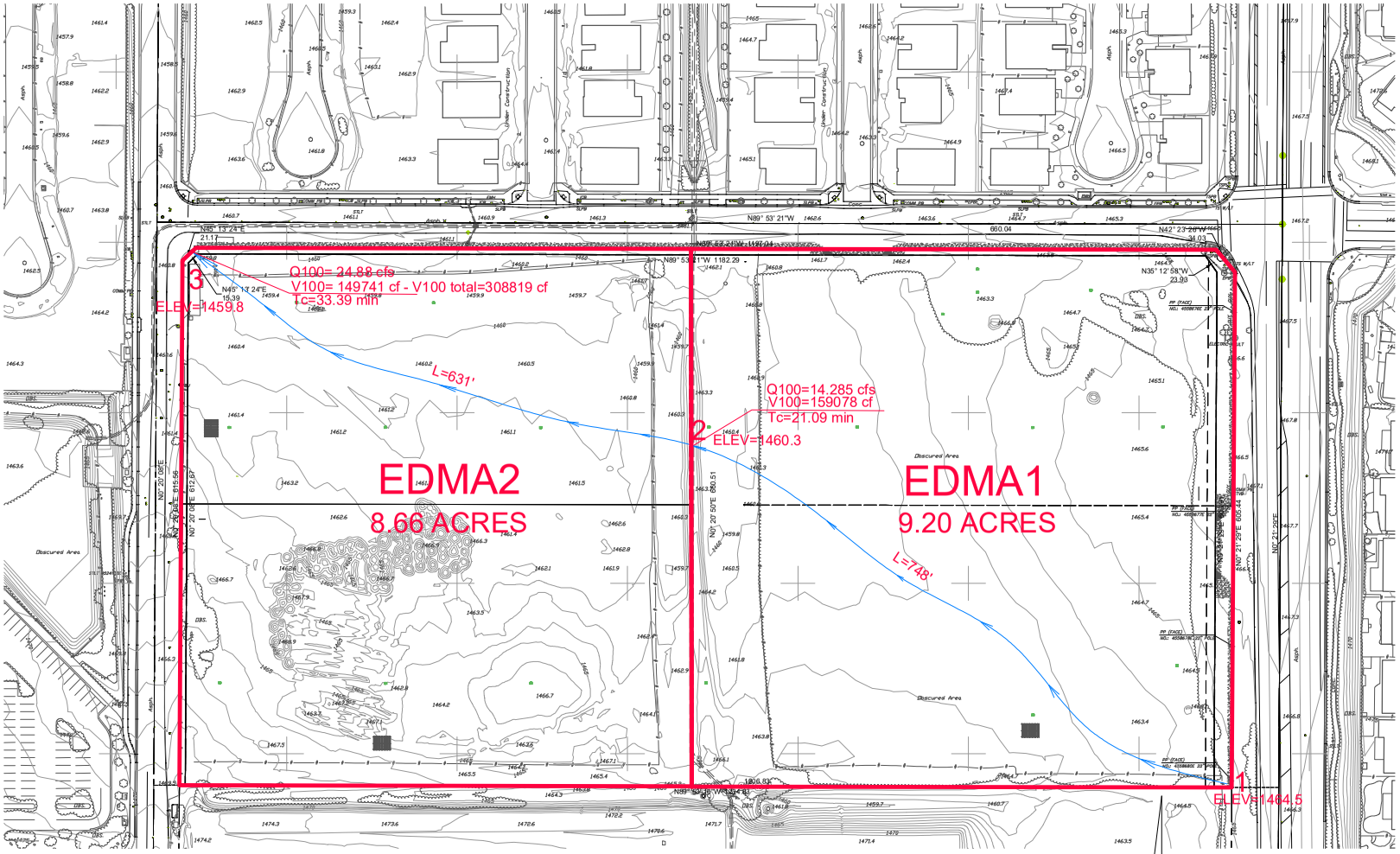
Insert additional rows if needed to accommodate all DMAs draining to the BMP

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
2	*433422*	*Mixed Surface Types*	*0.85*	*0.66*	*286608.6*			
	433422		***Total***		**286608.6**	**0.61**	***14569.3***	***15000***

Notes:

HYDROLOGY MAP

EXISTING HYDROLOGY MAP





VICINITY MAP NTS

OWNER/APPLICANT: NORTH BAYPORT INDUSTRIAL PARK II, LTD.
2245 W. 190TH STREET
TORRANCE, CALIFORNIA 90504
PH: (310) 326-2530 FAX: (310) 326-5113
CONTACT: DON CARRUTH
e-mail:DRC@TUFFLI.COM

ENGINEER/ REPRESENTATIVE: CHRISTIANSEN & COMPANY
5225 CANYON CREST DRIVE, STE. 251
RIVERSIDE, CALIFORNIA 92507
PH: (951) 323-4713 FAX: (951) 405-8410
CONTACT: KEITH CHRISTIANSEN, P.E.
e-mail: KEITH@CCOCIVIL.COM

ARCHITECT: HUMPHREYS & PARTNERS, ARCHITECTS, L.P.
2350 SE BRISTOL STREET, SUITE 310
NEWPORT BEACH, CALIFORNIA 92660
PH: (949) 955-9400 FAX: (949) 955-1897
CONTACT: SOONG KIM
e-mail: SOONG@HUMPHREYS.COM

GEOTECHNICAL: NorCal ENGINEERING
1064 I HUMBOLT STREET
LOS ALAMITOS, CALIFORNIA 90720
PH:(562) 799-9469
CONTACT: STEVE SPENSIERO

ADDRESS: XXXX JUNIPERO ROAD
MENIFEE, CALIFORNIA 92224

ASSESSOR PARCEL NUMBERS: 333-070-018, 333-070-019 & 333-070-053

ACREAGE: 17.87 ACRES (gross) 17.27 ACRES (net)

FEMA MAP: PANEL: 06025C2060G
ZONE: X

THOMAS BROS.: PG 838, GRID F4, G4 - 2014 ED.

UTILITY PURVEYORS: WATER - EMWD
SEWER - EMWD
ELECTRIC- EDISON
GAS- SOUTHERN CAL GAS
PHONE- VERIZON
CABLE- TIME WARNER

SCHOOL DISTRICT: MENIFEE UNION SCHOOL DISTRICT

TOPOGRAPHY: DAWSON SURVEYING, INC.
575 E. CARREON DRIVE
COLTON, CA. 92324
CONTACT: BOB DAWSON
e-mail: robertd@dsils.com
DATE SURVEYED: 9/27/2021

LEGAL DESCRIPTION: LOTS 964, 965, 970 & 971 OF ROMOLA FARMS NO. 10 AS SHOWN BY MAP ON FILE IN BOOK 15 AT PAGES 29 THROUGH 31OF MAPS IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY,TOGETHER WITH THAT PORTION OF THE EASTERLY20 FEET OF LOT "H" (JUNIPERO ROAD) AS SHOWN ON SAID MAP VACATED BY THE BOARD OF SUPERVISORS OF THE COUNTY OF RIVERSIDE, RECORDED FEBRUARY 6, 1962 AS INSTRUMENT NO. 11656 OF OFFICIAL RECORDS.

LAND USE

EXISTING: VACANT
PROPOSED: RESIDENTIAL-APARTMENT

ZONING

EXISTING: R-2
PROPOSED: R-2

GENERAL PLAN DESIGNATION = MDR

0 30 60 120 180 240
SCALE: 1"= 60'

NOTES:

STREET VACATIONS FOR THE NORTH SOUTH ROAD THROUGH THE CENTER OF PROJECT SHALL BE PART OF FINAL MAPPING OF TENTATIVE TRACT NO. 38340.
PROPERTY IS NOT SUBJECT TO LIQUEFACTION OR OTHER GEOLOGIC HAZARDS.
PROPERTY IS NOT SUBJECT TO OVERFLOW, INUNDATION OR FLOOD HAZARD.

DATE PREPARED:12/16/21

Call before you Dig
Avoid cutting underground utility lines. It's costly.
Call 811 or 1-800-227-2600

REVISIONS

SHT.	DESCRIPTION	DATE	BY	APRD

ENGINEER LOGO
Christiansen & Company
Land Development · Design · Engineering
Est. 2007
5225 Canyon Crest Drive, Ste 251
Riverside, California 92507
Ph: 951-323-4713 Fax: 951-405-8410
e-mail:keith@ccocivil.com

ENGINEER SEAL
KEITH A. CHRISTIANSEN
No. 50081
Civil
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

SCALE: 1" = 60'
DESIGN: KAC
DRAWN: CG
CHECKED: KAC
APPROVED:KAC
DATE: DEC. 12, 2021

CITY OF MENIFEE
ENGINEERING DEPARTMENT

JONATHAN G. SMITH RCE 61253 DATE
DIRECTOR OF PUBLIC WORKS/ EXP. 6/30/23
CITY ENGINEER

RECOMMENDED BY: DATE

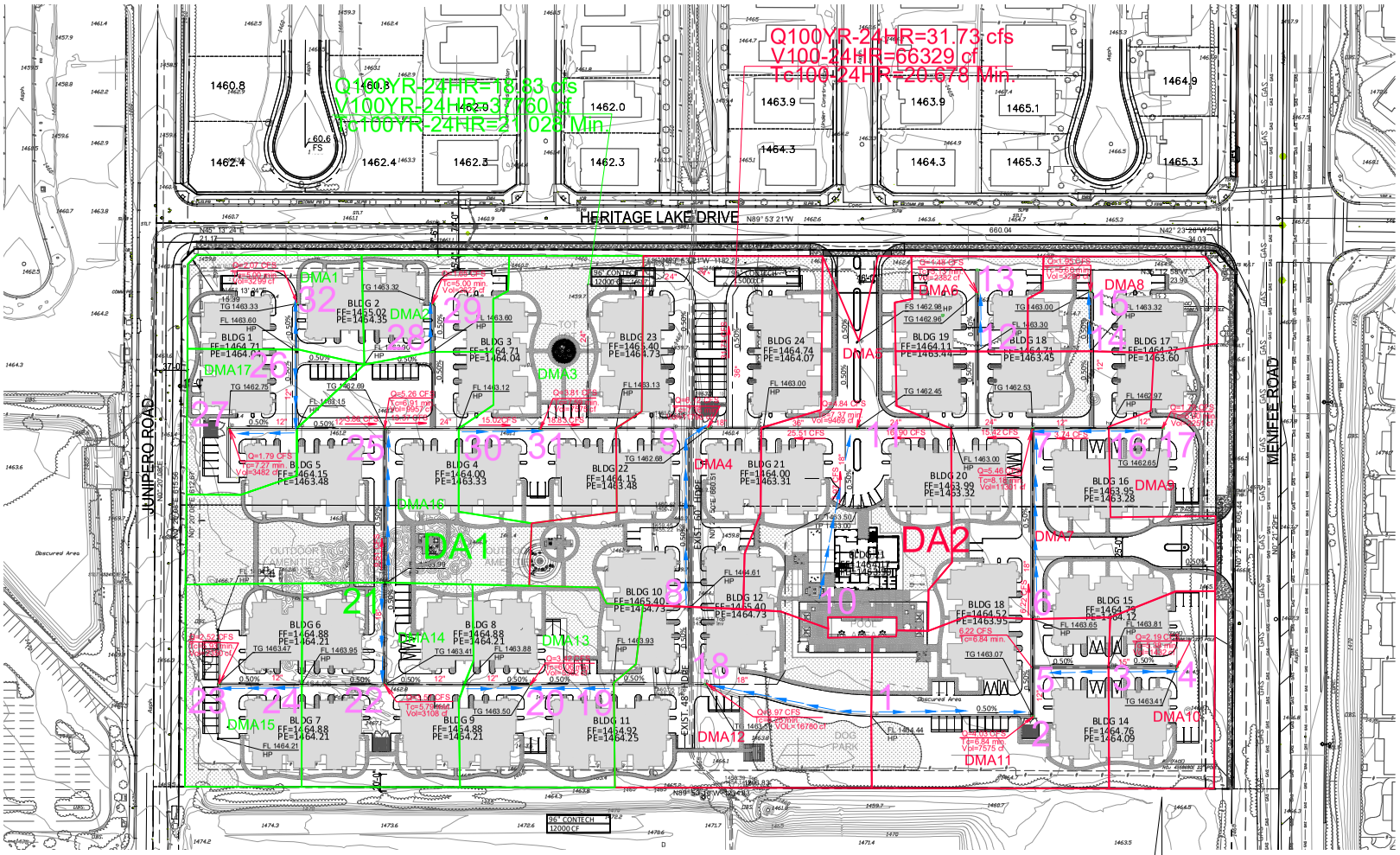
SEAL

CITY OF MENIFEE
ENGINEERING DEPARTMENT

VILLAGE AT JUNIPERO
Tentative Tract Map No. 38340
EXISTING HYDROLOGY MAP –100YRr

SHEET NO.
HYD–1
1 OF 1
PROJECT NO: HYD

POST DEVELOPMENT HYDROLOGY MAP





VICINITY MAP NTS

OWNER/APPLICANT: NORTH BAYPORT INDUSTRIAL PARK II, LTD.
2245 W. 190TH STREET
TORRANCE, CALIFORNIA 90504
PH: (310) 326-2530 FAX: (310) 326-5113
CONTACT: DON CARRUTH
e-mail:DRC@TUFFLI.COM

ENGINEER/ REPRESENTATIVE: CHRISTIANSEN & COMPANY
5225 CANYON CREST DRIVE, STE. 251
RIVERSIDE, CALIFORNIA 92507
PH: (951) 923-4713 FAX: (951) 405-8410
CONTACT: KEITH CHRISTIANSEN, P.E.
e-mail: KEITH@CCOCIVIL.COM

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2350 SE BRISTOL STREET, SUITE 310
NEWPORT BEACH, CALIFORNIA 92660
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CONTACT: SOONG KIM
e-mail: SOONG@HUMPHREYS.COM

GEOTECHNICAL: NorCal ENGINEERING
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LOS ALAMITOS, CALIFORNIA 90720
PH:(562) 799-9469
CONTACT: STEVE SPENSIERO

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FEMA MAP: PANEL: 06025C2060G
ZONE: X

THOMAS BROS.: PG 838, GRID F4, G4 - 2014 ED.

UTILITY PURVEYORS: WATER - EMWD
SEWER - EMWD
ELECTRIC- EDISON
GAS- SOUTHERN CAL GAS
PHONE- VERIZON
CABLE- TIME WARNER

SCHOOL DISTRICT: MENIFEE UNION SCHOOL DISTRICT

TOPOGRAPHY: DAWSON SURVEYING, INC.
575 E. CARREON DRIVE
COLTON, CA. 92324
CONTACT: BOB DAWSON
e-mail: robertd@dsils.com
DATE SURVEYED: 9/27/2021

LEGAL DESCRIPTION: LOTS 964, 965, 970 & 971 OF ROMOLA FARMS NO. 10 AS SHOWN BY MAP ON FILE IN BOOK 15 AT PAGES 29 THROUGH 31OF MAPS IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY,TOGETHER WITH THAT PORTION OF THE EASTERLY20 FEET OF LOT "H" (JUNIPERO ROAD) AS SHOWN ON SAID MAP VACATED BY THE BOARD OF SUPERVISORS OF THE COUNTY OF RIVERSIDE, RECORDED FEBRUARY 6, 1962 AS INSTRUMENT NO. 11656 OF OFFICIAL RECORDS.

TRIBUTARY DATA

DA1		DA2	
TRIBUTARY ITEM	AREA (AC.)	TRIBUTARY ITEM	AREA (AC.)
DMA1	0.54	DMA10	0.63
DMA2	0.43	DMA11	1.24
DMA3	1.24	DMA12	1.35
DMA13	0.99	DMA4	1.93
DMA14	1.06	DMA5	1.55
DMA15	0.75	DMA6	0.39
DMA16	1.63	DMA7	1.85
DMA17	0.57	DMA8	0.54
		DMA9	0.47
TOTAL AREA	7.21 AC	TOTAL AREA	9.95 AC

DATE PREPARED:12/21/22

DRAINAGE LEGEND

DA1-DRAINAGE AREA 1
DA2-DRAINAGE AREA 2
DMA-DRAINAGE TRIBUTARY AREA
DRAINAGE COURSE FROM NODE TO NODE
29 30 DRAINAGE NODES
18" HDPE STORM DRAIN PIPE
24"X24" GRATE DRAIN INLET (BMP)
96" CONTECH 12000 CF CONTECH UNDERGROUND STORAGE CHAMBERS (BMP)

LAND USE

EXISTING: VACANT
PROPOSED: RESIDENTIAL-APARTMENT

ZONING

EXISTING: R-2
PROPOSED: R-2

GENERAL PLAN DESIGNATION = MDR

0 30 60 120 180 240
SCALE: 1"= 60'

NOTES:

STREET VACATIONS FOR THE NORTH SOUTH ROAD THROUGH THE CENTER OF PROJECT SHALL BE PART OF FINAL MAPPING OF TENTATIVE TRACT NO. 38340.
PROPERTY IS NOT SUBJECT TO LIQUEFACTION OR OTHER GEOLOGIC HAZARDS.
PROPERTY IS NOT SUBJECT TO OVERFLOW, INUNDATION OR FLOOD HAZARD.

Call before you Dig
Avoid Strikes and Injury. It's the Law.
Call 811
1-800-227-2600

REVISIONS

SHT.	DESCRIPTION	DATE	BY	APRD

ENGINEER LOGO
5225 Canyon Crest Drive, Ste 251
Riverside, California 92507
Ph: 951-923-4713 Fax: 951-405-8410
email:keith@ccocivil.com
Christiansen & Company
Land Development - Design - Engineering
Est. 2007

ENGINEER SEAL
JOHN A. CHRISTIANSEN
No. 50061
Civil
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

SCALE: 1" = 60'
DESIGN: KAC
DRAWN: CG
CHECKED: KAC
APPROVED:KAC
DATE: DEC. 12, 2021

CITY OF MENIFEE
ENGINEERING DEPARTMENT

JONATHAN G. SMITH RCE 61253 DATE
DIRECTOR OF PUBLIC WORKS/ EXP. 6/30/23
CITY ENGINEER

RECOMMENDED BY: DATE

SEAL

CITY OF MENIFEE
ENGINEERING DEPARTMENT
VILLAGE AT JUNIPERO
Tentative Tract Map No. 38340
POST DEVELOPMENT HYDROLOGY MAP 100YR

SHEET NO.
HYD – 1
1 OF 1
PROJECT NO: HYD

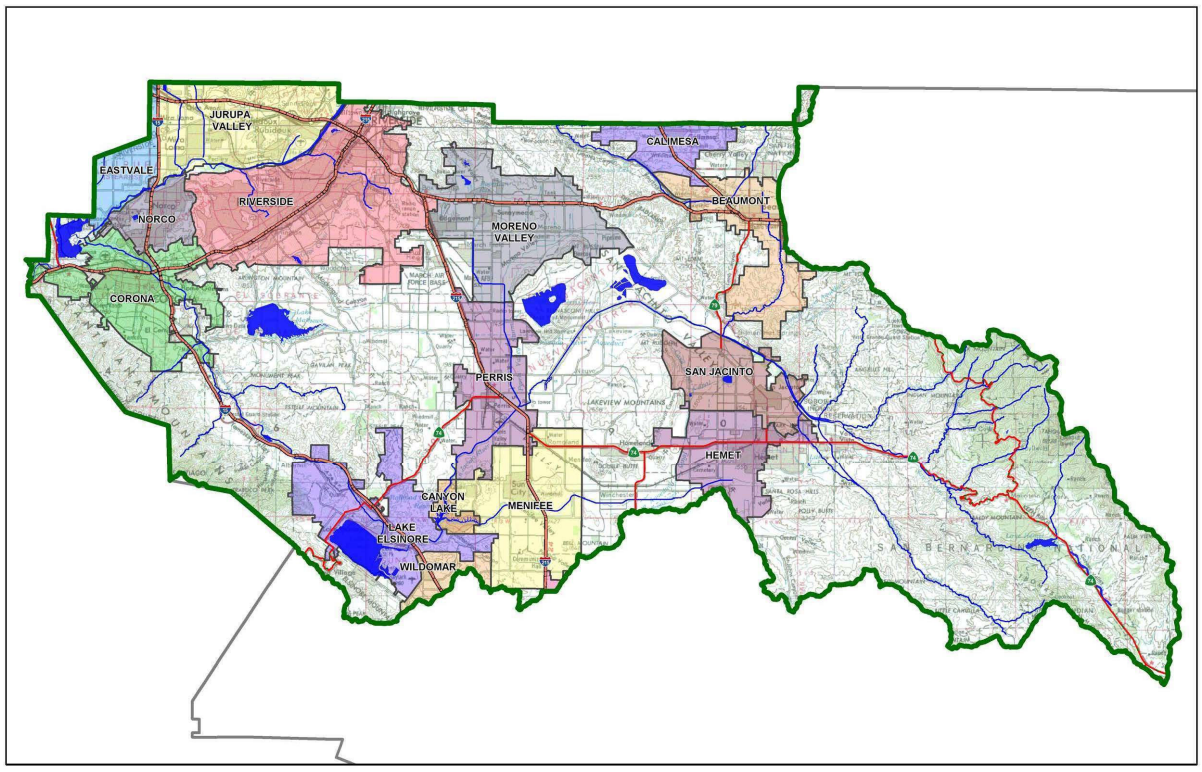
Project Specific Water Quality Management Plan

*A Template for Projects located within the **Santa Ana Watershed** Region of Riverside County*

Project Title: The Village at Junipero

Development No: Tentative Tract Map No. 38340

Design Review/Case No: WQ-0288



Contact Information:

Prepared for: North Bayport Industrial Park II, LTD.
2245 W. 190th Street
Torrance, California 90504
Ph: 310-326-2530
Fax: 310-326-5113

☒ **Preliminary**
☐ **Final**

Original Date Prepared: 1/17/22

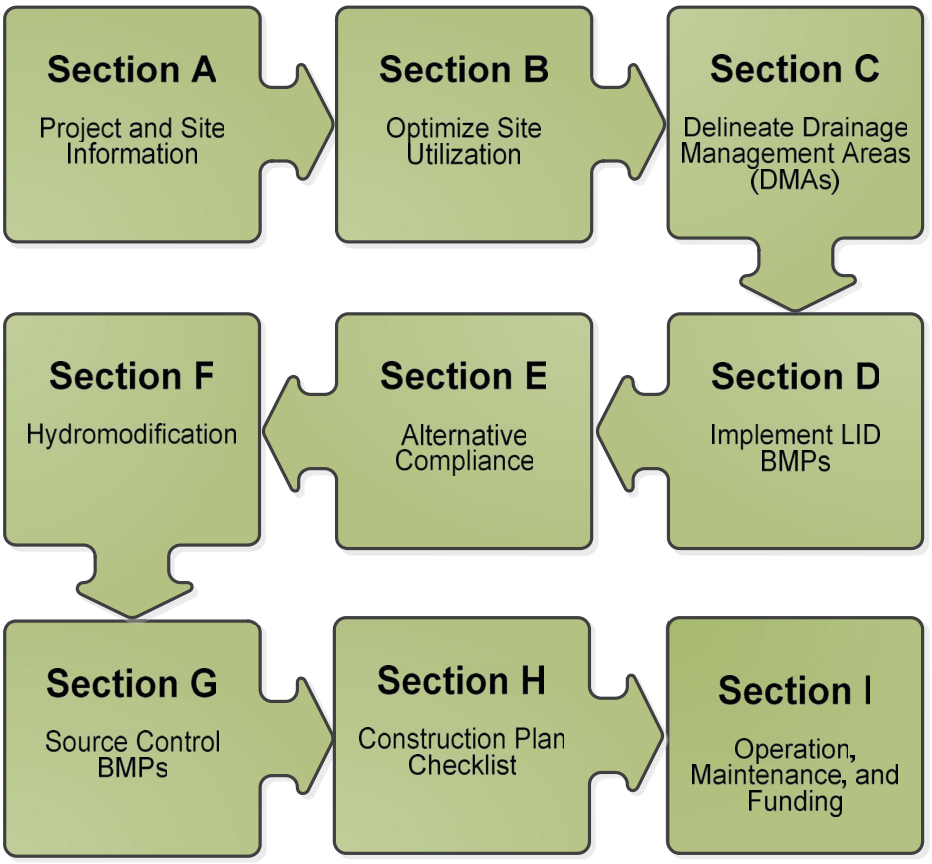
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Prepared for Compliance with
Regional Board Order No. **R8-2010-0033**
Template revised June 30, 2016

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A Brief Introduction

This Project-Specific WQMP Template for the **Santa Ana Region** has been prepared to help guide you in documenting compliance for your project. Because this document has been designed to specifically document compliance, you will need to utilize the WQMP Guidance Document as your "how-to" manual to help guide you through this process. Both the Template and Guidance Document go hand-in-hand, and will help facilitate a well prepared Project-Specific WQMP. Below is a flowchart for the layout of this Template that will provide the steps required to document compliance.



OWNER'S CERTIFICATION

This Project-Specific Water Quality Management Plan (WQMP) has been prepared for North Bayport Industrial Park II, LTD. by Christiansen & Company for the Village at Junipero.

This WQMP is intended to comply with the requirements of City of Menifee for a 240-unit apartment complex, Design Review/Case No. WQ-0228, which includes the requirement for the preparation and implementation of a Project-Specific WQMP.

The undersigned, while owning the property/project described in the preceding paragraph, shall be responsible for the implementation and funding of this WQMP and will ensure that this WQMP is amended as appropriate to reflect up-to-date conditions on the site. In addition, the property owner accepts responsibility for interim operation and maintenance of Stormwater BMPs until such time as this responsibility is formally transferred to a subsequent owner. This WQMP will be reviewed with the facility operator, facility supervisors, employees, tenants, maintenance and service contractors, or any other party (or parties) having responsibility for implementing portions of this WQMP. At least one copy of this WQMP will be maintained at the project site or project office in perpetuity. The undersigned is authorized to certify and to approve implementation of this WQMP. The undersigned is aware that implementation of this WQMP is enforceable under City of Menifee Water Quality Ordinance (Municipal Code Section 15.01.060).

"I, the undersigned, certify under penalty of law that the provisions of this WQMP have been reviewed and accepted and that the WQMP will be transferred to future successors in interest."

Owner:
North Bayport Industrial Park II, Ltd.

Date

Don L. Tuffli
Manager of it's General Partner

PREPARER'S CERTIFICATION

"The selection, sizing and design of stormwater treatment and other stormwater quality and quantity control measures in this plan meet the requirements of Regional Water Quality Control Board Order No. **R8-2010-0033** and any subsequent amendments thereto."

Preparer's Signature

2/17/23
Date

Keith A. Christiansen
Christiansen & Company
Civil Engineer/Owner

Preparer's Licensure: RCE 50083

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Section A: Project and Site Information

PROJECT INFORMATION		
Type of Project:	Apartment Complex	
Planning Area:		
Community Name:		
Development Name:	The Village at Junipero	
PROJECT LOCATION		
Latitude & Longitude (DMS): 33°56'45" N/117°22'00" W		
Project Watershed and Sub-Watershed: Santa Ana and Santa Ana River, Reach 3		
Gross Acres:		
APN(s): 333-070-018, 019 & 053		
Map Book and Page No.: PG. 685, GRID H2		
PROJECT CHARACTERISTICS		
Proposed or Potential Land Use(s)	Residential	
Proposed or Potential SIC Code(s)	N/A	
Area of Impervious Project Footprint (SF)	0	
Total Area of proposed Impervious Surfaces within the Project Limits (SF)/or Replacement	56670	
Does the project consist of offsite road improvements?	☒ Y	☐ N
Does the project propose to construct unpaved roads?	☐ Y	☒ N
Is the project part of a larger common plan of development (phased project)?	☐ Y	☒ N
EXISTING SITE CHARACTERISTICS		
Total area of existing Impervious Surfaces within the project limits (SF)	0	
Is the project located within any MSHCP Criteria Cell?	☐ Y	☒ N
If so, identify the Cell number:	N/A	
Are there any natural hydrologic features on the project site?	☐ Y	☒ N
Is a Geotechnical Report attached?	☒ Y	☐ N
If no Geotech. Report, list the NRCS soils type(s) present on the site (A, B, C and/or D)	N/A	
What is the Water Quality Design Storm Depth for the project?	0.61	

A.1 Maps and Site Plans

Appendix 1, includes a map of the local vicinity and existing site. In addition, WQMP Site Plan, located in Appendix 1, includes the following:

- Drainage Management Areas
- Proposed Structural BMPs
- Drainage Path
- Drainage Infrastructure, Inlets, Overflows
- Source Control BMPs
- Buildings, Roof Lines, Downspouts
- Impervious Surfaces
- Standard Labeling

A.2 Identify Receiving Waters

In order of upstream to downstream, the receiving waters that the project is tributary to are as follows. A map of the receiving waters is included in Appendix 1.

Table A.1 Receiving Waters

Receiving Waters	EPA Approved 303(d) List Impairments	Designated Beneficial Uses	Proximity to RARE Beneficial Use
SANTA ANA RIVER, REACH 3	Pathogens	AGR, GWR, REC1, REC2, WARM, WILD, RARE	8.7 MILES
Temescal Creek	None	MUN, REC1, REC2, WARM, WILD, SPWN	N/A
San Jacinto Reaches 1-4	None	INTERMITTENT-MUN, AGR, GWR, REC1, REC2, WARM, WILD	N/A
Canyon Lake	Pathogens, Nutrients	MUN, AGR, GWR, REC1, REC2, WARM, WILD	6.0 MILES
Lake Elsinore	Nutrients	REC1, REC2, WARM, WILD	10.0 MILES
Strawberry Creek	None	MUN, AGR, GWR, REC1, REC2, COLD, WILD	N/A

A.3 Additional Permits/Approvals required for the Project:

Table A.2 Other Applicable Permits

Agency	Permit Required	
State Department of Fish and Game, 1602 Streambed Alteration Agreement	☐ Y	☒ N
State Water Resources Control Board, Clean Water Act (CWA) Section 401 Water Quality Cert.	☐ Y	☒ N
US Army Corps of Engineers, CWA Section 404 Permit	☐ Y	☒ N
US Fish and Wildlife, Endangered Species Act Section 7 Biological Opinion	☐ Y	☒ N
Statewide Construction General Permit Coverage	☒ Y	☐ N
Statewide Industrial General Permit Coverage	☐ Y	☒ N
Western Riverside MSHCP Consistency Approval (e.g., JPR, DBESP)	☐ Y	☒ N
Other *(please list in the space below as required)*	☐ Y	☒ N

Section B: Optimize Site Utilization (LID Principles)

The Village at Junipero Consist of 17.87 acres. This project has been designed to optimize site utilization (LID Principles) in the following manner:

A) Does the project Identify and preserve existing drainage patterns? If so, how? If not, why? No. Existing Street Improvements have been constructed on Junipero Ave. and Heritage Lake. In addition, a 48”/60” Stormdrain Pipe has been constructed through the center of the site. Lastly, development is designed to flow into existing Stormdrain Pipe.

B) Does the project Identify and protect existing vegetation? If so, how? If not, why?
Vegetation has been preserved along the northerly portion of parcels 1&2.

C) Does the project Identify and preserve natural infiltration capacity? If so, how? If not, why?
Infiltration Trenches have been designed within the project.

D) Does the project Identify and minimize impervious area? If so, how? If not, why?
The project has been designed to preserve all natural infiltration in the designed open space. All lots shall maximize infiltration by grading all areas towards proposed Landscape Areas where feasible, and utilization of Infiltration Trenches.

E) Does the project Identify and disperse runoff to adjacent pervious areas? If so, how? If not, why?
All runoff from lots and street shall outlet into an Infiltration Trench located along the frontage of all lots.

Section C: Delineate Drainage Management Areas (DMAs)

Table C.1 DMA Classifications

DMA Name or ID	Surface Type(s)[1]	Area (Sq. Ft.)	DMA Type
1	APARTMENT	314,068 SQ FT	D
2	APARTMENT	433,422 SQ FT	D

[1]*Reference Table 2-1 in the WQMP Guidance Document to populate this column*

Table C.2 Type 'A', Self-Treating Areas

DMA Name or ID	Area (Sq. Ft.)	Stabilization Type	Irrigation Type (if any)
N/A			

Table C.3 Type 'B', Self-Retaining Areas N/A

Self-Retaining Area				**Type 'C' DMAs that are draining to the Self-Retaining Area**		
DMA Name/ ID	Post-project surface type	Area (square feet) [A]	Storm Depth (inches) [B]	DMA Name / ID	[C] from Table C.4 = [C]	Required Retention Depth (inches) [D]
N/A						

$$[D] = [B] + \frac{[B] \cdot [C]}{[A]}$$

N/A

Table C.4 Type 'C', Areas that Drain to Self-Retaining Areas

DMA					Receiving Self-Retaining DMA		
DMA Name/ ID	Area (square feet) [A]	Post-project surface type	Runoff factor [B]	Product [C] = [A] x [B]	DMA name /ID	Area (square feet) [D]	Ratio [C]/[D]
N/A							

Table C.5 Type 'D', Areas Draining to BMPs

DMA Name or ID	BMP Name or ID
1	Underground Storage Chamber
2	Underground Storage Chamber

Note: More than one drainage management area can drain to a single LID BMP, however, one drainage management area may not drain to more than one BMP.

Section D: Implement LID BMPs

D.1 Infiltration Applicability

Is there an approved downstream 'Highest and Best Use' for stormwater runoff (ref: Chapter 2.4.4 of the WQMP Guidance Document)? ☐ Y ☒ N

Geotechnical Report

A Geotechnical Report is required by the City of Riverside to confirm present and past site characteristics that may affect the use of Infiltration BMPs, See Appendix 3.

Is this project classified as a small project consistent with the requirements of Chapter 2 of the WQMP Guidance Document? ☐ Y ☒ N

Infiltration Feasibility

Table D.1 Infiltration Feasibility

Does the project site…	YES	NO
…have any DMAs with a seasonal high groundwater mark shallower than 10 feet?		X
If Yes, list affected DMAs:		
…have any DMAs located within 100 feet of a water supply well?		X
If Yes, list affected DMAs:		
…have any areas identified by the geotechnical report as posing a public safety risk where infiltration of stormwater could have a negative impact?		X
If Yes, list affected DMAs:		
…have measured in-situ infiltration rates of less than 1.6 inches / hour?	X	
If Yes, list affected DMAs: An underground storage system is being proposed for both DMA's*		
…have significant cut and/or fill conditions that would preclude in-situ testing of infiltration rates at the final infiltration surface?		X
If Yes, list affected DMAs:		
…geotechnical report identify other site-specific factors that would preclude effective and safe infiltration?		X
Describe here:		

*Underground Storage Chambers are being used for DMA 1 (12,000 cf Chamber) and DMA 2 (15,000 cf Chamber) and contain all volume from first flush flows per worksheet calculations. All flows above first flush volume is allowed to flow into the existing 60" Stormdrain Pipe through a 24" overflow pipe. Lastly, all volumes contained within chambers are not exposed and allowed to percolate overtime.

D.2 Harvest and Use Assessment N/A - WILL NOT BE UTILIZED. RETENTION FOR 1ST FLUSH

The following conditions apply*:*

☐ Reclaimed water will be used for the non-potable water demands for the project.

☐ Downstream water rights may be impacted by Harvest and Use as approved by the Regional Board (verify with the Copermittee).

X The Design Capture Volume will be addressed using Infiltration Only BMPs. (Harvest and Use BMPs are still encouraged, but are not required as the Design Capture Volume will be infiltrated or evapotranspiration.) *

Harvest and Use BMPs need not be assessed for the site.

*Underground Storage Chambers are being used for DMA 1 (12,000 cf Chamber) and DMA 2 (15,000 cf Chamber) and contain all volume from first flush flows per worksheet calculations. All flows above first flush volume is allowed to flow into the existing 60" Stormdrain Pipe through a 24" overflow pipe. Lastly, all volumes contained within chambers are not exposed and allowed to percolate overtime.

Irrigation Use Feasibility N/A - NOT USED IN CALCULATIONS.

Complete the following steps to determine the feasibility of harvesting stormwater runoff for Irrigation Use BMPs on your site:

Step 1: Identify the total area of irrigated landscape on the site, and the type of landscaping used.

Total Area of Irrigated Landscape: Insert Area (Acres)

Type of Landscaping (Conservation Design or Active Turf): List Landscaping Type

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for irrigation use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Total Area of Impervious Surfaces: Insert Area (Acres)

Step 3: Cross reference the Design Storm depth for the project site (see Exhibit A of the WQMP Guidance Document) with the left column of Table 2-3 in Chapter 2 to determine the minimum area of Effective Irrigated Area per Tributary Impervious Area (EIATIA).

Enter your EIATIA factor: EIATIA Factor

Step 4: Multiply the unit value obtained from Step 3 by the total of impervious areas from Step 2 to develop the minimum irrigated area that would be required.

Minimum required irrigated area: Insert Area (Acres)

Step 5: Determine if harvesting stormwater runoff for irrigation use is feasible for the project by comparing the total area of irrigated landscape (Step 1) to the minimum required irrigated area (Step 4).

Minimum required irrigated area (Step 4)	Available Irrigated Landscape (Step 1)
Insert Area (Acres)	Insert Area (Acres)

Toilet Use Feasibility N/A - NOT UTILIZED IN CALCULATIONS OR CREDITS

Complete the following steps to determine the feasibility of harvesting stormwater runoff for toilet flushing uses on your site:

Step 1: Identify the projected total number of daily toilet users during the wet season, and account for any periodic shut downs or other lapses in occupancy:

Projected Number of Daily Toilet Users: Number of daily Toilet Users

Project Type: Enter 'Residential', 'Commercial', 'Industrial' or 'Schools'

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for toilet use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Total Area of Impervious Surfaces: Insert Area (Acres)

Step 3: Enter the Design Storm depth for the project site (see Exhibit A) into the left column of Table 2-2 in Chapter 2 to determine the minimum number or toilet users per tributary impervious acre (TUTIA).

Enter your TUTIA factor: TUTIA Factor

Step 4: Multiply the unit value obtained from Step 3 by the total of impervious areas from Step 2 to develop the minimum number of toilet users that would be required.

Minimum number of toilet users: Required number of toilet users

Step 5: Determine if harvesting stormwater runoff for toilet flushing use is feasible for the project by comparing the Number of Daily Toilet Users (Step 1) to the minimum required number of toilet users (Step 4).

Minimum required Toilet Users (Step 4)	Projected number of toilet users (Step 1)
Insert Area (Acres)	Insert Area (Acres)

Other Non-Potable Use Feasibility N/A - NOT USED IN CALCULATIONS OR CREDITS

Are there other non-potable uses for stormwater runoff on the site (e.g. industrial use)? See Chapter 2 of the Guidance for further information. If yes, describe below. If no, write N/A.

Insert narrative description here.

Step 1: Identify the projected average daily non-potable demand, in gallons per day, during the wet season and accounting for any periodic shut downs or other lapses in occupancy or operation.

Average Daily Demand: Projected Average Daily Use (gpd)

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for the identified non-potable use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Total Area of Impervious Surfaces: Insert Area (Acres)

Step 3: Enter the Design Storm depth for the project site (see Exhibit A) into the left column of Table 2-4 in Chapter 2 to determine the minimum demand for non-potable uses per tributary impervious acre.

Enter the factor from Table 2-4: Enter Value

Step 4: Multiply the unit value obtained from Step 3 by the total of impervious areas from Step 2 to develop the minimum number of gallons per day of non-potable use that would be required.

Minimum required use: Minimum use required (gpd)

Step 5: Determine if harvesting stormwater runoff for other non-potable use is feasible for the project by comparing the projected average daily use (Step 1) to the minimum required non-potable use (Step 4).

Minimum required non-potable use (Step 4)	**Projected average daily use (Step 1)**
Minimum use required (gpd)	Projected Average Daily Use (gpd)

If Irrigation, Toilet and Other Use feasibility anticipated demands are less than the applicable minimum values, Harvest and Use BMPs are not required and you should proceed to utilize LID Bioretention and Biotreatment per Section 3.4.2 of the WQMP Guidance Document.

D.3 Bioretention and Biotreatment Assessment

Other LID Bioretention and Biotreatment BMPs as described in Chapter 2.4.7 of the WQMP Guidance Document are feasible on nearly all development sites with sufficient advance planning.

Select one of the following:

☒ LID Bioretention/Biotreatment BMPs will be used for some or all DMAs of the project as noted below in Section D.4 (note the requirements of Section 3.4.2 in the WQMP Guidance Document).

☐ A site-specific analysis demonstrating the technical infeasibility of all LID BMPs has been performed and is included in Appendix 5. If you plan to submit an analysis demonstrating the technical infeasibility of LID BMPs, request a pre-submittal meeting with the Copermittee to discuss this option. Proceed to Section E to document your alternative compliance measures.

D.4 Feasibility Assessment Summaries

Table D.2 LID Prioritization Summary Matrix

DMA Name/ID	LID BMP Hierarchy				No LID (Alternative Compliance)
	1. Infiltration	2. Harvest and use	3. Bioretention	4. Biotreatment	
1	☒	☐	☐	☐	☐
2	☒	☐	☐	☐	☐

All DMA's are treated by infiltration LID BMP's.

D.5 Lid BMP Sizing

Table D.3 DCV Calculations for LID BMPs

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Impervious Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Enter BMP Name / Identifier Here* *INFILTRATION TRENCH "IT-1"*		
	[A]		[B]	[C]	[A] x [C]			
1	*312,761*	*APARTMENT*	*0.85*	*0.66*	*206819 SF*	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
	312,761				206819	0.61	10513.3	***12000***

Table D.3 DCV Calculations for LID BMPs

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Impervious Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Enter BMP Name / Identifier Here* *INFILTRATION TRENCH "IT-2"*		
	[A]		[B]	[C]	[A] x [C]			
2	*433,422*	*APARTMENT*	*0.85*	*0.66*	*286609 SF*	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
	433,422				286609	0.61	14569	***15000***

[B], [C] is obtained as described in Section 2.3.1 of the WQMP Guidance Document

[E] is obtained from Exhibit A in the WQMP Guidance Document

[G] is obtained from a design procedure sheet, such as in LID BMP Design Handbook and placed in Appendix 6

Section E: Alternative Compliance (LID Waiver Program)

LID BMPs are expected to be feasible on virtually all projects. Where LID BMPs have been demonstrated to be infeasible as documented in Section D, other Treatment Control BMPs must be used (subject to LID waiver approval by the Regional Board). For the project, the following applies:

X LID Principles and LID BMPs have been incorporated into the site design to fully address all Drainage Management Areas. No alternative compliance measures are required for this project and thus this Section is not required to be completed.

- *Or* -

☐ The following Drainage Management Areas are unable to be addressed using LID BMPs. A site-specific analysis demonstrating technical infeasibility of LID BMPs has been approved by the Regional Board and included in Appendix 5. Additionally, no downstream regional and/or sub-regional LID BMPs exist or are available for use by the project. The following alternative compliance measures on the following pages are being implemented to ensure that any pollutant loads expected to be discharged by not incorporating LID BMPs, are fully mitigated.

E.1 Identify Pollutants of Concern

Utilizing Table A.1 from Section A above which noted your project's receiving waters and their associated EPA approved 303(d) listed impairments, cross reference this information with that of your selected Priority Development Project Category in Table E.1 below. If the identified General Pollutant Categories are the same as those listed for your receiving waters, then these will be your Pollutants of Concern and the appropriate box or boxes will be checked on the last row. The purpose of this is to document compliance and to help you appropriately plan for mitigating your Pollutants of Concern in lieu of implementing LID BMPs.

Table E.1 Potential Pollutants by Land Use Type

Priority Development Project Categories and/or Project Features (check those that apply)	General Pollutant Categories							
	Bacterial Indicators	Metals	Nutrients	Pesticides	Toxic Organic Compounds	Sediments	Trash & Debris	Oil & Grease
☐ Detached Residential Development	P	N	P	P	N	P	P	P
☒ Attached Residential Development	P	N	P	P	N	P	P	P[(2)]
☐ Commercial/Industrial Development	P[(3)]	P	P[(1)]	P[(1)]	P[(5)]	P[(1)]	P	P
☐ Automotive Repair Shops	N	P	N	N	P[(4, 5)]	N	P	P
☐ Restaurants (>5,000 ft^2)	P	N	N	N	N	N	P	P
☐ Hillside Development (>5,000 ft^2)	P	N	P	P	N	P	P	P
☐ Parking Lots (>5,000 ft^2)	P[(6)]	P	P[(1)]	P[(1)]	P[(4)]	P[(1)]	P	P
☐ Retail Gasoline Outlets	N	P	N	N	P	N	P	P
Project Priority Pollutant(s) of Concern	☒	☐	☒	☐	☐	☐	☐	☐

P = Potential

N = Not Potential

(1) A potential Pollutant if non-native landscaping exists or is proposed onsite; otherwise not expected

(2) A potential Pollutant if the project includes uncovered parking areas; otherwise not expected

(3) A potential Pollutant is land use involving animal waste

(4) Specifically petroleum hydrocarbons

(5) Specifically solvents

(6) Bacterial indicators are routinely detected in pavement runoff

E.2 Stormwater Credits N/A - STORM WATER CREDITS ARE NOT BEING USED

Projects that cannot implement LID BMPs but nevertheless implement smart growth principles are potentially eligible for Stormwater Credits. Utilize Table 3-8 within the WQMP Guidance Document to identify your Project Category and its associated Water Quality Credit. If not applicable, write N/A.

Table E.2 Water Quality Credits

Qualifying Project Categories	Credit Percentage[2]
Total Credit Percentage[1]	

[1]Cannot Exceed 50%
[2]Obtain corresponding data from Table 3-8 in the WQMP Guidance Document

E.3 Sizing Criteria N/A - STORM WATER CREDITS ARE NOT BEING UTILIZED

After you appropriately considered Stormwater Credits for your project, utilize Table E.3 below to appropriately size them to the DCV, or Design Flow Rate, as applicable. Please reference Chapter 3.5.2 of the WQMP Guidance Document for further information.

Table E.3 Treatment Control BMP Sizing

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Impervious Fraction, I_f	DMA Runoff Factor	DMA Area x Runoff Factor		*Enter BMP Name / Identifier Here*		
	[A]		[B]	[C]	[A] x [C]				
						Design Storm Depth (in)	*Minimum Design Capture Volume or Design Flow Rate (cubic feet or cfs)*	*Total Storm Water Credit % Reduction*	*Proposed Volume or Flow on Plans (cubic feet or cfs)*
	A_T = Σ[A]				Σ= [D]	[E]	$[F] = \frac{[D]x[E]}{[G]}$	[F] X (1-[H])	[I]

[B], [C] is obtained as described in Section 2.3.1 from the WQMP Guidance Document
[E] is for Flow-Based Treatment Control BMPs [E] = .2, for Volume-Based Control Treatment BMPs, [E] obtained from Exhibit A in the WQMP Guidance Document
[G] is for Flow-Based Treatment Control BMPs [G] = 43,560, for Volume-Based Control Treatment BMPs, [G] = 12
[H] is from the Total Credit Percentage as Calculated from Table E.2 above
[I] as obtained from a design procedure sheet from the BMP manufacturer and should be included in Appendix 6

E.4 Treatment Control BMP Selection

N/A - TREATMENT CONTROL NOT BEING UTILIZED
STORMWATER RETENTION BEING USED

Treatment Control BMPs typically provide proprietary treatment mechanisms to treat potential pollutants in runoff, but do not sustain significant biological processes. Treatment Control BMPs must have a removal efficiency of a medium or high effectiveness as quantified below:

- **High**: equal to or greater than 80% removal efficiency
- **Medium**: between 40% and 80% removal efficiency

Such removal efficiency documentation (e.g., studies, reports, etc.) as further discussed in Chapter 3.5.2 of the WQMP Guidance Document, must be included in Appendix 6. In addition, ensure that proposed Treatment Control BMPs are properly identified on the WQMP Site Plan in Appendix 1.

Table E.4 Treatment Control BMP Selection

Selected Treatment Control BMP Name or ID[1]	Priority Pollutant(s) of Concern to Mitigate[2]	Removal Efficiency Percentage[3]

[1] Treatment Control BMPs must not be constructed within Receiving Waters. In addition, a proposed Treatment Control BMP may be listed more than once if they possess more than one qualifying pollutant removal efficiency.
[2] Cross Reference Table E.1 above to populate this column.
[3] As documented in a Co-Permittee Approved Study and provided in Appendix 6.

Section F: Hydromodification

F.1 Hydrologic Conditions of Concern (HCOC) Analysis

This project does not create a Hydrologic Condition of concern, meeting the alternative criteria for HCOC Exemption as shown in Section F.2.

HCOC EXEMPTION 1: The Priority Development Project disturbs less than one acre. The Copermittee has the discretion to require a Project-Specific WQMP to address HCOCs on projects less than one acre on a case by case basis. The disturbed area calculation should include all disturbances associated with larger common plans of development.

Does the project qualify for this HCOC Exemption? ☐ Y ☒ N

HCOC EXEMPTION 2: The volume and time of concentration[1] of storm water runoff for the post-development condition is not significantly different from the pre-development condition for a 2-year return frequency storm (a difference of 5% or less is considered insignificant) using one of the following methods to calculate:

- Riverside County Hydrology Manual
- Technical Release 55 (TR-55): Urban Hydrology for Small Watersheds (NRCS 1986), or derivatives thereof, such as the Santa Barbara Urban Hydrograph Method
- Other methods acceptable to the Co-Permittee

Does the project qualify for this HCOC Exemption? ☐ Y ☒ N

Table F.1 Results in table below and hydrologic analysis in Appendix 7

Table F.1 Hydrologic Conditions of Concern Summary

	2 year – 24 hour		
	Pre-condition	**Post-condition**	**% Difference**
Time of Concentration	46.12 min.	20.68	-55%
Volume (Cubic Feet)	21971	53700	+144%

[1] Time of concentration is defined as the time after the beginning of the rainfall when all portions of the drainage basin are contributing to flow at the outlet.

HCOC EXEMPTION 3: All downstream conveyance channels to an adequate sump (Prado Dam, Santa Ana River that will receive runoff from the project are engineered and regularly maintained to ensure design flow capacity; no sensitive stream habitat areas will be adversely affected; or are not identified on the Co-Permittees Hydromodification Sensitivity Maps.

Does the project qualify for this HCOC Exemption? ☐ Y ☒ N

F.2 HCOC Mitigation

If none of the above HCOC Exemption Criteria are applicable, HCOC criteria is considered mitigated if the project meets, one of the following conditions:

☒ a. Additional LID BMPS are implemented onsite or offsite to mitigate potential erosion or habitat impacts as a result of HCOCs. This can be conducted by an evaluation of site-specific conditions utilizing accepted professional methodologies published by entities such as the California Stormwater Quality Association (CASQA), the Southern California Coastal Water Research Project (SCCRWP), or other Co-Permittee approved methodologies for site-specific HCOC analysis.

☐ b. The project is developed consistent with an approved Watershed Action Plan that addresses HCOC in Receiving Waters.

☐ c. Mimicking the pre-development hydrograph with the post-development hydrograph, for a 2-year return frequency storm. Generally, the hydrologic conditions of concern are not significant, if the post-development hydrograph is no more than 10% greater than pre-development hydrograph. In cases where excess volume cannot be infiltrated or captured and reused, discharge from the site must be limited to a flow rate no greater than 110% of the pre-development 2-year peak flow.

Section G: Source Control BMPs

The following table identifies the potential sources of runoff pollutants for this project and specifies how they cure addressed through permanent controls and operational BMP's:

Table G.1 Permanent and Operational Source Control Measures

Potential Sources of Runoff pollutants	Permanent Structural Source Control BMPs	Operational Source Control BMPs
Onsite Storm Drain Inlets	Location of Inlets	Maintain and periodically repaint or replace inlet markings. Provide stormwater pollution prevention information to new site owners, lessees or operators. See Applicable operational BMP's in Fact Sheet SC-44
Landscape/Outdoor Pesticide Use	Show location of native trees or area of ground cover to be undisturbed.	See applicable operational BMP's in "What you should know for.....Landscape and Gardening" at http://rcflood.org/stormwater/ Downloads/ LandscapeGardenBrochure. pdf
Pools, Spas, Ponds, Decorative fountains & other water features	Show location of water feature and a sanitary sewer cleanout in an accessible area within 10 feet.	See applicable operational BMP's in "Guidelines for Maintaining Your Swimming Pool, Jacuzzi and Garden Fountain" at http://rcflood.org/stormwater/

Section H: Construction Plan Checklist

Table H.1 Construction Plan Cross-reference

BMP No. or ID	BMP Identifier and Description	Corresponding Plan Sheet(s)	Latitude/Longitude
USC- 1	Underground Storage Chamber	See Engineered Drawings	33°56’53’ N/ 117°22’00” W
USC- 2	Underground Storage Chamber	See Engineered Drawings	33°56’53’ N/ 117°22’00” W

Section I: Operation, Maintenance and Funding

As required by the City of Menifee , the following operation, maintenance and funding details are provided as summarized:

1. A means to finance and implement facility maintenance in perpetuity, including replacement cost.
2. Acceptance of responsibility for maintenance from the time the BMPs are constructed until responsibility for operation and maintenance is legally transferred.
3. An outline of general maintenance requirements for the Stormwater BMPs selected.
4. Figures delineating and designating pervious and impervious areas, location, and type of Stormwater BMP, and tables of pervious and impervious areas served by each facility.
5. A separate list and location of self-retaining areas or areas addressed by LID Principles that do not require specialized O&M or inspections but will require typical landscape maintenance as noted in Chapter 5, pages 85-86, in the WQMP Guidance. Include a brief description of typical landscape maintenance for these areas.

See Appendix 9 for a detailed Stormwater BMP Operation and Maintenance Plan that sets forth a maintenance schedule for each of the Stormwater BMPs built on site, and agreement assigning responsibility for maintenance and providing for inspections and certification.

Maintenance Mechanism: C,C & R's

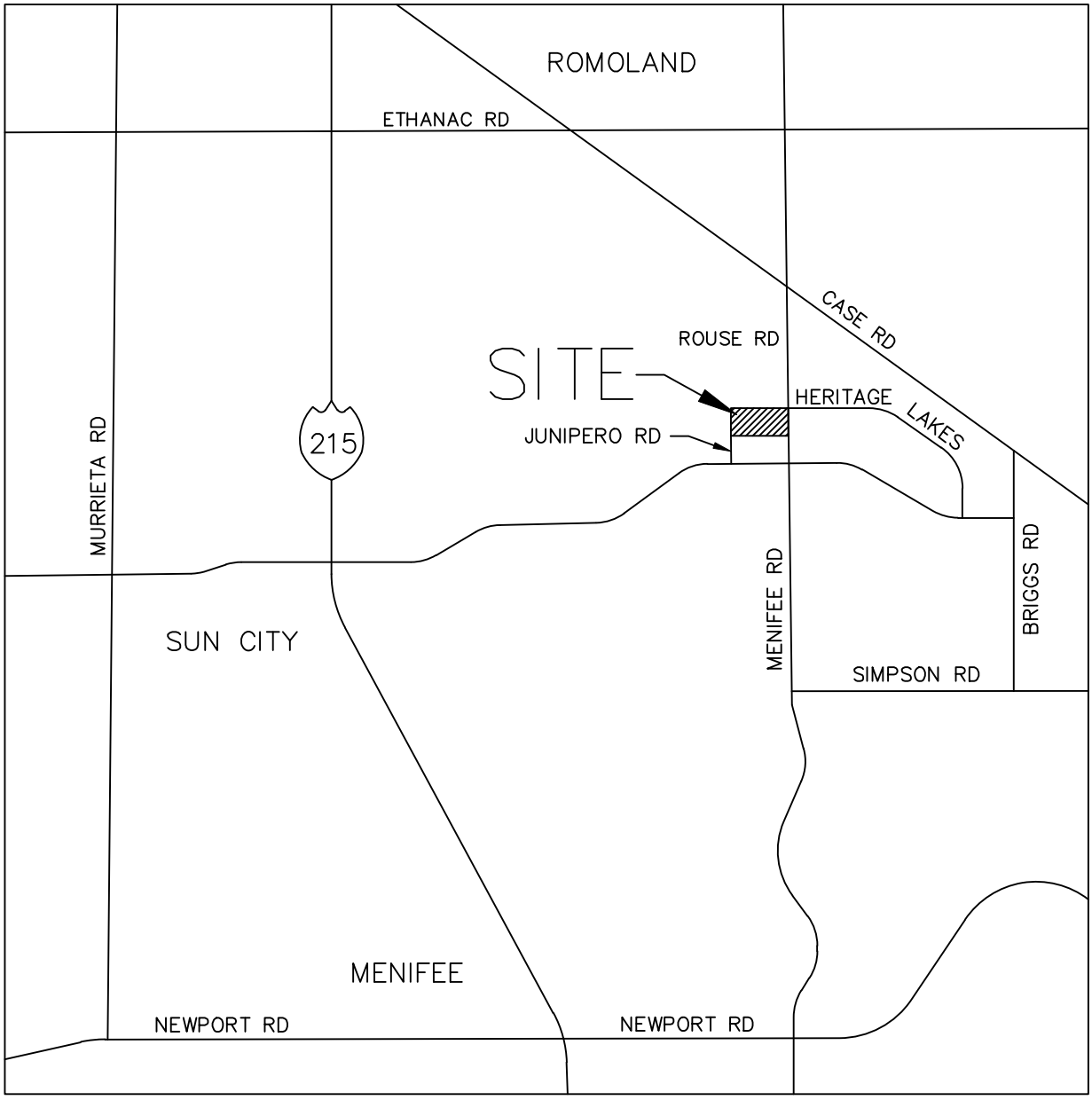
Will the proposed BMPs be maintained by a Home Owners' Association (HOA) or Property Owners Association (POA)?

☒ Y ☐ N

Operation and Maintenance Plan and Maintenance Mechanism is included in Appendix 9. Educational materials for those personnel that will be maintaining the proposed BMPs within this Project-Specific WQMP are included in Appendix 10.

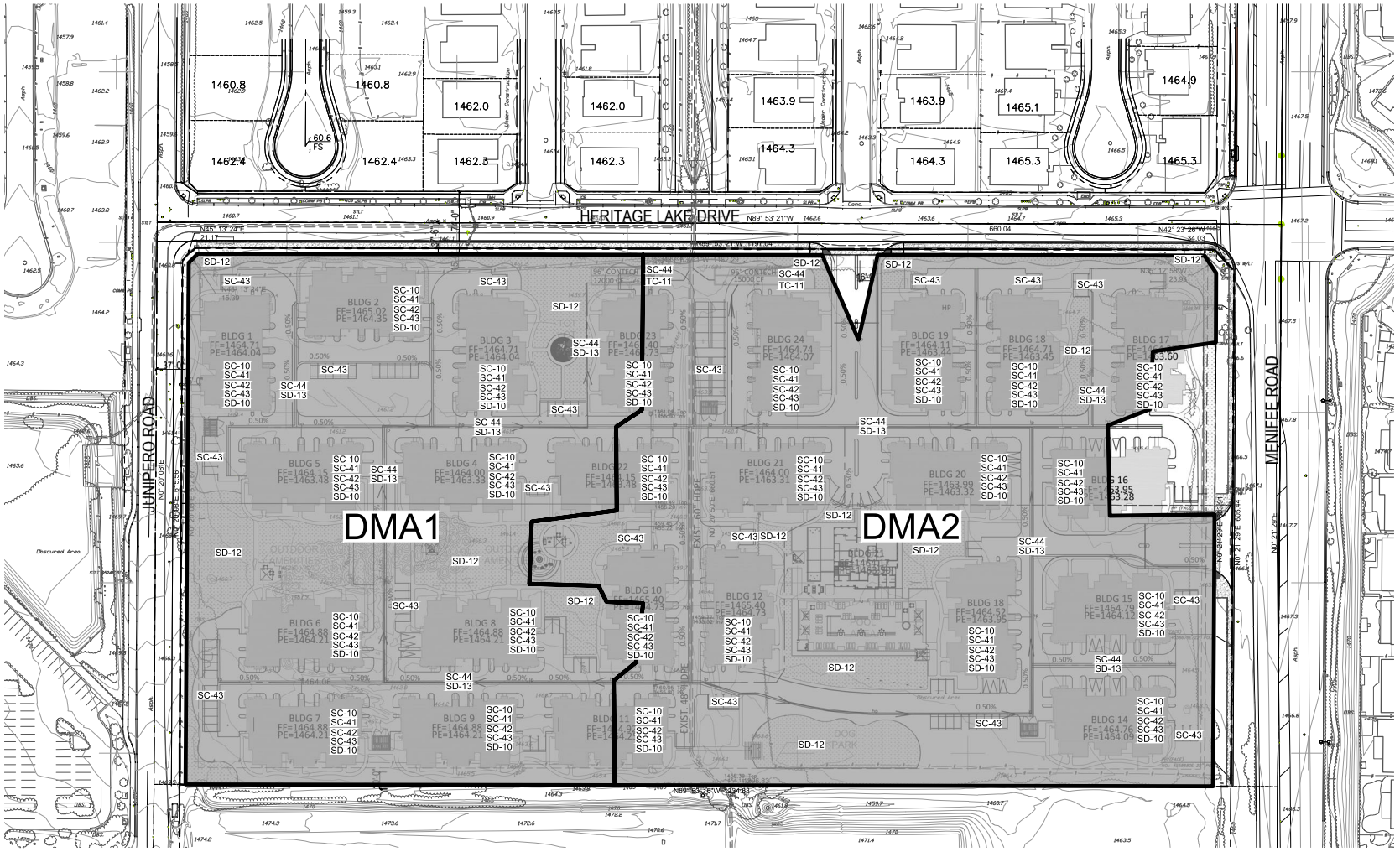
Appendix 1: Maps and Site Plans

Location Map, WQMP Site Plan and Receiving Waters Map



VICINITY MAP

N.T.S.





VICINITY MAP NTS

WQMP LEGEND / BEST MANAGEMENT PRACTICES (BMP'S)

(REFERENCE: CALIFORNIA STORMWATER BMP HANDBOOK 2011)

SC-10	NON-STORMWATER DISCHARGES
SC-41	BUILDING & GROUNDS MAINTENANCE
SC-42	BUILDING REPAIR & CONSTRUCTION
SC-43	PARKING AREA MAINTENANCE
SC-44	DRAINAGE SYSTEM MAINTENANCE
SD-10	SITE DESIGN & LANDSCAPE PLANNING
SD-11	ROOF RUNOFF CONTROLS
SD-12	EFFICIENT IRRIGATION
SD-13	STORM DRAIN SIGNAGE
SD-32	TRASH STORAGE AREAS
TC-11	INFILTRATION BASIN

ASPHALT

LANDSCAPE

WQMP MAP				
DMA	IMPERVIOUS AREA	PERVIOUS AREA	TOTAL AREA	IMPERVIOUS %
1	6.10 AC	1.08 AC	7.18 AC	85.0
2	8.46 AC	1.49 AC	9.95 AC	85.0

0 30 60 120 180 240

SCALE: 1"= 60'

Call before you Dig
Avoid cutting underground utility lines. It's costly.
Call 811
or 1-800-227-2600

REVISIONS

SHT.	DESCRIPTION	DATE	BY	APRD

ENGINEER LOGO

Christiansen & Company
Land Development · Design · Engineering
Est. 2007

5225 Canyon Crest Drive, Ste 251
Riverside, California 92507
Ph: 951-225-4713 Fax: 951-405-8410
email:keithsiecocivil.com

ENGINEER SEAL

REGISTERED PROFESSIONAL ENGINEER
KEITH A. CHRISTIANSEN
No. 50081
Civil
Exp. 30/6/2021
STATE OF CALIFORNIA

SCALE: 1" = 60'
DESIGN: KAC
DRAWN: CG
CHECKED: KAC
APPROVED:KAC
DATE: DEC. 12, 2021

CITY OF MENIFEE
ENGINEERING DEPARTMENT

JONATHAN G. SMITH
DIRECTOR OF PUBLIC WORKS/
CITY ENGINEER
RCE 61253
EXP. 6/30/23
DATE

RECOMMENDED BY:
DATE

SEAL

CITY OF MENIFEE
ENGINEERING DEPARTMENT

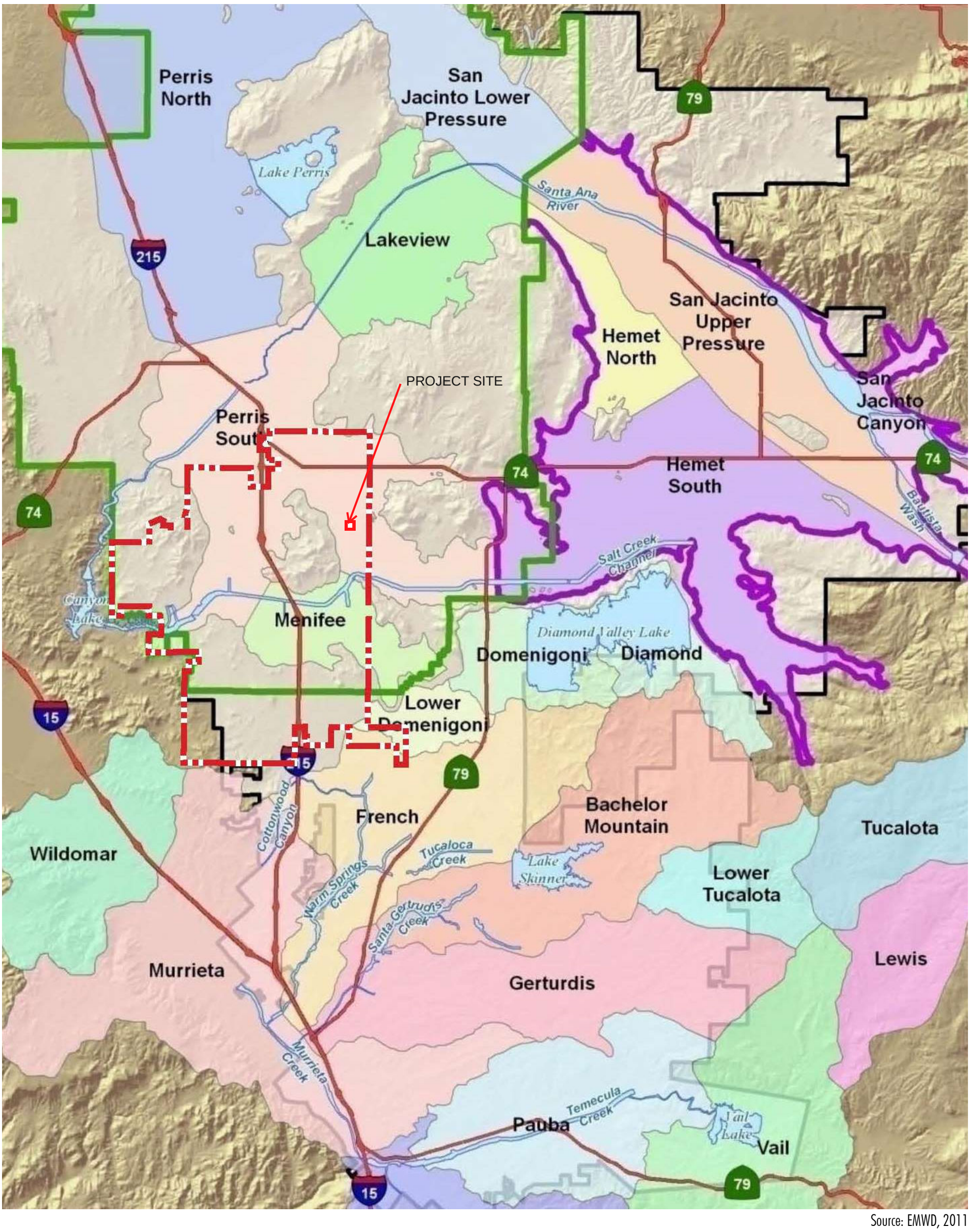
VILLAGE AT JUNIPERO
Tentative Tract Map No. 38340

WQMP SITE PLAN

SHEET NO.
WQMP-1
1 OF 1

PROJECT NO: WQMP

Exhibit OSC-6
Water Resources



Source: EMWD, 2011

AB3030 Management Plan Area

Hemet/San Jacinto Management Plan Area

Eastern Municipal Water District Service Area

Groundwater Subbasins

MENIFEE GENERAL PLAN

THE PLANNING CENTER DC&E

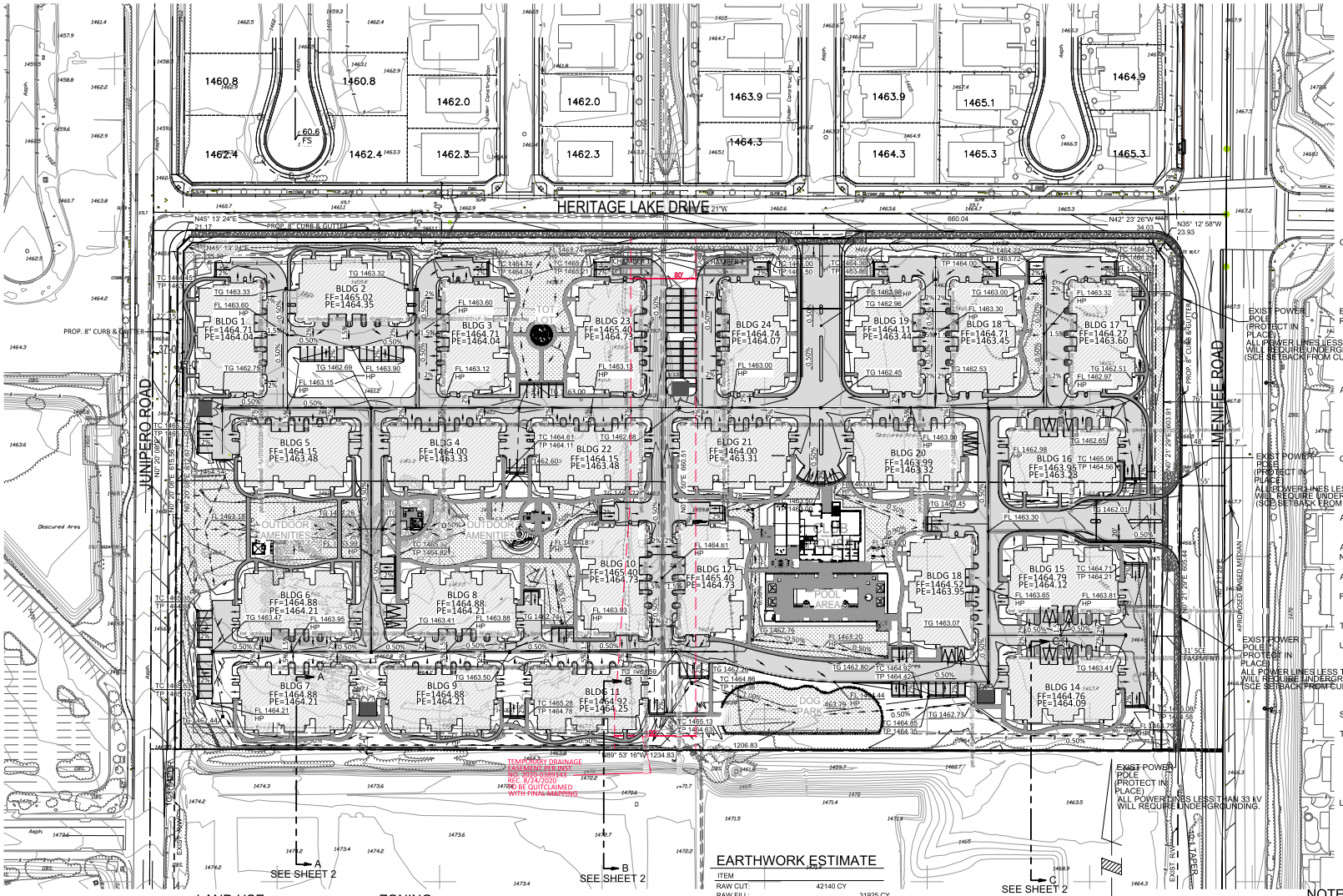
3/12/2014

0 0.5 1 Mile

ExhibitOSC-6_Water_Resources

Appendix 2: Construction Plans

Grading and Drainage Plans



VICINITY MAP

NTS



OWNER/APPLICANT: NORTH BAYPORT INDUSTRIAL PARK II, LTD.
2245 W. 190TH STREET
TORRANCE, CALIFORNIA 90504
PH: (310) 326-2530 FAX: (310) 326-5113
CONTACT: DON CARRUTH
e-mail:DRC@TUFFLI.COM

ENGINEER/ REPRESENTATIVE: CHRISTIANSEN & COMPANY
5225 CANYON CREST DRIVE, STE. 251
RIVERSIDE, CALIFORNIA 92507
PH: (951) 323-4713 FAX: (951) 405-8410
CONTACT: KEITH CHRISTIANSEN, P.E.
e-mail: KEITH@CCOCIVIL.COM

ARCHITECT: HUMPHREYS & PARTNERS, ARCHITECTS, L.P.
2350 SE BRISTOL STREET, SUITE 310
NEWPORT BEACH, CALIFORNIA 92660
PH: (949) 955-9400 FAX: (949) 955-1897
CONTACT: SOONG KIM
e-mail: SOONG@HUMPHREYS.COM

GEOTECHNICAL: NorCal ENGINEERING
10641 HUMBOLT STREET
LOS ALAMITOS, CALIFORNIA 90720
PH:(562) 799-9469
CONTACT: STEVE SPENSIERO

ADDRESS: XXXX JUNIPERO ROAD
MENIFEE, CALIFORNIA 92224

ASSESSOR PARCEL NUMBERS: 333-070-018, 333-070-019 & 333-070-053

ACREAGE: 19.25 ACRES (gross) 17.27 ACRES (net)

FEMA MAP: PANEL: 06025C2060G
ZONE: X

THOMAS BROS.: PG 838, GRID F4, G4 - 2014 ED.

UTILITY PURVEYORS: WATER - EMWD
SEWER - EMWD
ELECTRIC- EDISON
GAS- SOUTHERN CAL GAS
PHONE- VERIZON
CABLE- TIME WARNER

SCHOOL DISTRICT: MENIFEE UNION SCHOOL DISTRICT

TOPOGRAPHY: VAN SURVEYING
3649 NINTH STREET
RIVERSIDE, CALIFORNIA 92501
CONTACT: STEVE VAN
e-mail: VANSURVEYING@AOL.COM
DATE SURVEYED: 5/1/2014

LEGAL DESCRIPTION: LOTS 964, 965, 970 & 971 OF ROMOLA FARMS NO. 10 AS SHOWN BY MAP ON FILE IN BOOK 15 AT PAGES 29 THROUGH 31OF MAPS IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY,TOGETHER WITH THAT PORTION OF THE EASTERLY20 FEET OF LOT "H" (JUNIPERO ROAD) AS SHOWN ON SAID MAP VACATED BY THE BOARD OF SUPERVISORS OF THE COUNTY OF RIVERSIDE, RECORDED FEBRUARY 6, 1962 AS INSTRUMENT NO. 11656 OF OFFICIAL RECORDS.

LAND USE

EXISTING: VACANT
PROPOSED: RESIDENTIAL-APARTMENT

ZONING

EXISTING: MDR
PROPOSED: MDR

GENERAL PLAN DESIGNATION = 8.1-14 DU/AC RESIDENTIAL

EARTHWORK ESTIMATE

ITEM		
RAW CUT:	42140 CY	
RAW FILL:		31925 CY
SHRINKAGE (10%):	(4210)CY	
SUBSIDENCE (0.1'):	(2766) CY	
OVEREXCAVATION (3.0')	(3293) CY	
TOTAL	31925 CY	31925 CY

MAXIMUM CUT DEPTH=4.61' MAX. CUT SLOPE=2:1
MAXIMUM FILL DEPTH=4.30' MAX. FILL SLOPE=2:1

0 30 60 120 180 240
SCALE: 1"= 60'

NOTES:

1) STREET VACATIONS FOR THE NORTH SOUTH ROAD THROUGH THE CENTER OF PROJECT SHALL BE PART OF FINAL MAPPING OF TENTATIVE TRACT NO. 38340.
2) PROPERTY IS NOT SUBJECT TO LIQUEFACTION OR OTHER GEOLOGIC HAZARDS.
3) PROPERTY IS NOT SUBJECT TO OVERFLOW, INUNDATION OR FLOOD HAZARD.
4) ALL PARKING SPACE CURB IS PER CITY OF MENIFEE STD. DWG. 202-TYPE 6A CURB.
5) MENIFEE RD. ENTRY IS "RIGHT IN-RIGHT OUT".

DATE PREPARED:2/17/23

NOTE: ALL PLANS ARE PRELIMINARY UNLESS SIGNED BY CITY OF ENGINEER OF RECORD OR LAND SURVEYOR

BASIS OF BEARING:

THE CALIFORNIA STATE PLANE COORDINATE SYSTEM 1983 ZONE 6, 2007.00 EPOCH, BASED LOCALLY ON CONTROL STATIONS "BILL" AND "P477" , NAD83 (NSRS2011) BEING NORTH 28°53'23.27" EAST.

REVISIONS

SHT.	DESCRIPTION	DATE	BY	APRD

ENGINEER LOGO

Christiansen & Company
Land Development · Design · Engineering
Est. 2007
5225 Canyon Crest Drive, Ste 251
Riverside, California 92507
Ph: 951-323-4713 Fax: 951-405-8410
email:keith@ccocivil.com

ENGINEER SEAL

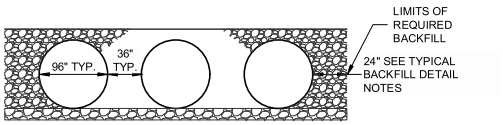
KEITH A. CHRISTIANSEN No. 50083 Civil
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

SCALE:	1" = 60'
DESIGN:	KAC
DRAWN:	CG
CHECKED:	KAC
APPROVED:	KAC
DATE:	DEC. 12, 2021

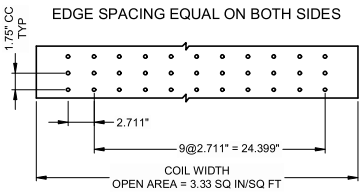
CITY OF MENIFEE
ENGINEERING DEPARTMENT

VILLAGE AT JUNIPERO
Tentative Tract Map No. 38340
Preliminary Grading Plan

SHEET NO.
PRECP–1
1 OF 4
PROJECT NO: TTM



TYPICAL SECTION VIEW
NOT TO SCALE



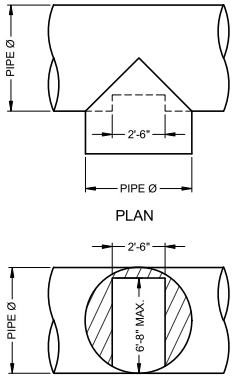
NOTES:
1. PERFORATIONS MEET AASHTO AND ASTM SPECIFICATIONS.
2. PERFORATION OPEN AREA PER SQUARE FOOT OF PIPE IS BASED ON THE NOMINAL DIAMETER AND LENGTH OF PIPE.
3. DIMENSIONS SUBJECT TO MANUFACTURER'S TOLERANCES.
4. ALL HOLES 3/8"Ø.

EXFILTRATION AREA
STANDARD PERFORATION PATTERNS

APPROXIMATE AREA PER LINEAR FOOT OF PIPE				
PIPE	CORRUGATION PATTERN			
	2 2/3" x 1/2"	3" x 1"	5" x 1"	ULTRA FLO
96"Ø	97.7 SQ. IN.	103.2 SQ. IN.	100.4 SQ. IN.	

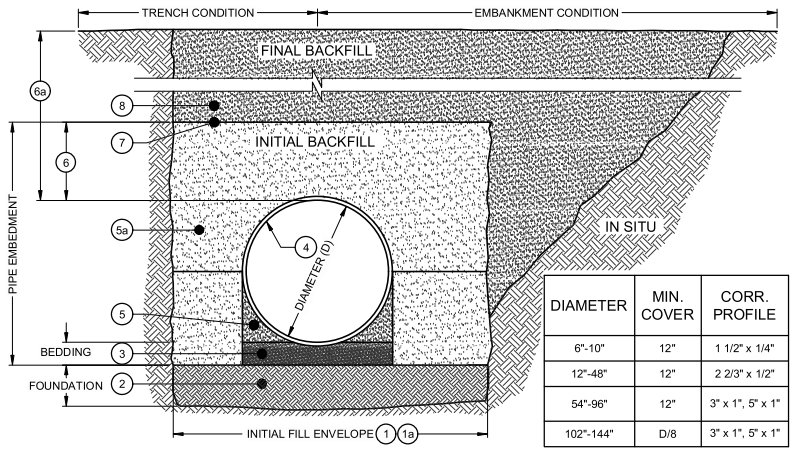
NOTES:
- GAGE AND COATING LIMITATIONS APPLY. 5" x 1" IS NOT AVAILABLE IN ALUMINUM.
- DIMENSIONS SUBJECT TO MANUFACTURER'S TOLERANCES.

TYPICAL PERFORATION DETAIL
NOT TO SCALE



96"Ø to 144"Ø FITTING REINFORCEMENT MAY BE REQUIRED BASED ON HEIGHT OF COVER AND LIVE LOAD CONDITION

TYPICAL MANWAY DETAIL
NOT TO SCALE



DIAMETER	MIN. COVER	CORR. PROFILE
6"-10"	12"	1 1/2" x 1/4"
12"-48"	12"	2 2/3" x 1/2"
54"-96"	12"	3" x 1", 5" x 1"
102"-144"	D/8	3" x 1", 5" x 1"

BACKFILL REQUIREMENTS FOLLOW THE GUIDELINES OF AASHTO LRFD BRIDGE DESIGN (SEC 12) AND CONSTRUCTION (SEC 26)

1 MINIMUM TRENCH WIDTH MUST ALLOW ROOM FOR PROPER COMPACTION OF HAUNCH MATERIALS UNDER THE PIPE.
THE MINIMUM TRENCH WIDTH (12.6.6.1):
PIPE ≤ 12": D + 16"
PIPE > 12": 1.5D + 12"

1a MINIMUM EMBANKMENT WIDTH (IN FEET) FOR INITIAL FILL ENVELOPE (12.6.6.2):
PIPE < 24": 3.0D
PIPE 24" - 144": D + 4'0"
PIPE > 144": D + 10'0"

2 THE FOUNDATION UNDER THE PIPE AND SIDE BACKFILL SHALL BE ADEQUATE TO SUPPORT THE LOADS ACTING UPON IT (26.5.2).

3 BEDDING MATERIAL SHALL BE A RELATIVELY LOOSE GRANULAR MATERIAL THAT IS ROUGHLY SHAPED TO FIT THE BOTTOM OF THE PIPE, AND A MINIMUM OF TWICE THE CORRUGATION DEPTH IN THICKNESS, WITH THE MAXIMUM PARTICLE SIZE OF ONE-HALF OF THE CORRUGATION DEPTH (26.3.8.1, 26.5.3).

4 PERFORATED CORRUGATED STEEL PIPE (CSP / HEL-COR).

5 HAUNCH ZONE MATERIAL SHALL BE HAND SHOVELED OR SHOVEL SLICED INTO PLACE TO ALLOW FOR PROPER COMPACTION (26.5.4).

5a BACKFILL MATERIAL SHALL BE A CLEAN, CRUSHED STONE MEETING SIZE NO. 3 OR 4, PER AASHTO M 43. IT IS RECOMMENDED THAT LIFTS NOT EXCEED AN 8" UNCOMPACTED LIFT HEIGHT TO PREVENT UNEVEN LOADING, AND THE LESSER OF 1/3 THE DIAMETER OR 24" AS THE MAXIMUM DIFFERENTIAL SIDE-TO-SIDE. COMPACTION OF ALL PLACED FILL MATERIAL IS NECESSARY AND SHALL BE CONSIDERED ADEQUATE WHEN NO FURTHER YIELDING OF THE MATERIAL IS OBSERVED UNDER THE COMPACTOR, OR UNDER FOOT, AND THE PROJECT ENGINEER, OR THEIR REPRESENTATIVE, IS SATISFIED WITH THE LEVEL OF COMPACTION (26.5.4).

6 INITIAL BACKFILL ABOVE PIPE MAY INCLUDE ROAD BASE MATERIAL (AND RIGID PAVEMENT IF APPLICABLE). SEE TABLE ABOVE.

6a TOTAL HEIGHT OF COMPACTED COVER FOR CONVENTIONAL HIGHWAY LOADS IS MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TOP OF RIGID PAVEMENT (12.6.6.3).

7 GEOTEXTILE SHALL BE USED TO WRAP TRENCH SIDES AND TOP ONLY TO PREVENT SOIL MIGRATION INTO VARYING SOIL TYPES (PROJECT ENGINEER).

8 FINAL BACKFILL MATERIAL SELECTION AND COMPACTION REQUIREMENTS SHALL FOLLOW THE PROJECT PLANS AND SPECIFICATIONS PER THE ENGINEER OF RECORD (26.5.4.1).

NOTES:
- FOR MULTIPLE BARREL INSTALLATIONS THE RECOMMENDED STANDARD SPACING BETWEEN PARALLEL PIPE RUNS SHALL BE PIPE DIA./2 BUT NO LESS THAN 12", OR 36" FOR PIPE DIAMETERS 72" AND LARGER. CONTACT YOUR CONTECH REPRESENTATIVE FOR NONSTANDARD SPACING (TABLE C12.6.7-1).

TYPICAL BACKFILL DETAIL
NOT TO SCALE

Call before you dig
Call 811
or
1-800-227-2600

REVISIONS

SHT.	DESCRIPTION	DATE	BY	APRD

ENGINEER LOGO

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Riverside, California 92507
Ph: 951-320-4713 Fax: 951-405-8410
email:kelli@cesnetwork.com

Christiansen & Company
Land Development · Design · Engineering
Est. 2007

ENGINEER SEAL

KELLI K. CHRISTIANSEN
No. 74081
Civil
STATE OF CALIFORNIA
REGISTERED PROFESSIONAL ENGINEER

SCALE:
DESIGN: KAC
DRAWN: CG
CHECKED: KAC
APPROVED:KAC
DATE: DEC. 12, 2021

CITY OF MENIFEE
ENGINEERING DEPARTMENT

JONATHAN G. SMITH — RCE 61253 — DATE
DIRECTOR OF PUBLIC WORKS/ CITY ENGINEER — EXP. 6/30/23

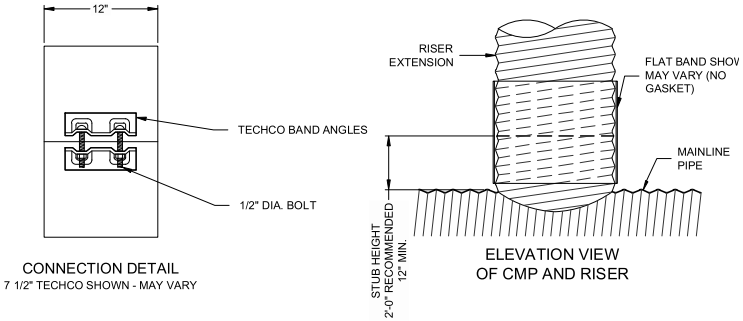
RECOMMENDED BY: — DATE

SEAL

CITY OF MENIFEE
ENGINEERING DEPARTMENT

VILLAGE AT JUNIPERO
Tentative Tract Map No. 38340
UNDERGROUND STORAGE CHAMBERS

SHEET NO.
1
1 of 2
PROJECT NO:



CONNECTION DETAIL
7 1/2" TECHCO SHOWN - MAY VARY

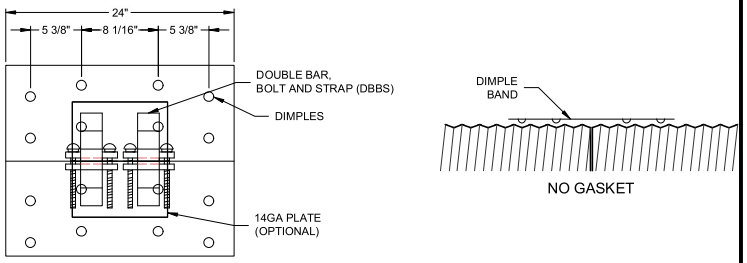
ELEVATION VIEW
OF CMP AND RISER

PLAIN END CMP RISER PIPE

GENERAL NOTES:

1. **DELIVERED BAND STYLE AND FASTENER TYPE MAY VARY BY FABRICATION PLANT.**
2. JOINT IS TO BE ASSEMBLED PER AASHTO BRIDGE CONSTRUCTION SPECIFICATION SEC 26.4.2.4.
3. BAND MATERIAL AND GAGE TO BE SAME AS RISER MATERIAL.
4. IF RISER HAS A HEIGHT OF COVER OF 10' OR MORE, USE A SLIP JOINT.
5. BANDS ARE NORMALLY FURNISHED AS FOLLOWS:
   - 12" THRU 48" 1-PIECE
   - 54" 2-PIECES
6. ALL RISER JOINT COMPONENTS WILL BE FIELD ASSEMBLED.
7. MANHOLE RISERS IN APPLICATIONS WHERE TRAFFIC LOADS ARE IMPOSED REQUIRE SPECIAL DESIGN CONSIDERATIONS.
8. DIMENSIONS SUBJECT TO MANUFACTURING TOLERANCES.

12" RISER BAND DETAIL
NOT TO SCALE



CONNECTION DETAIL
(DBBS)

PLAIN END CMP PIPE

GENERAL NOTES:

1. JOINT IS TO BE ASSEMBLED PER AASHTO BRIDGE CONSTRUCTION SPECIFICATION SEC 26.4.2.4.
2. BAND MATERIALS AND/OR COATING CAN VARY BY LOCATION. CONTACT YOUR CONTECH REPRESENTATIVE FOR AVAILABILITY.
3. BANDS ARE SHAPED TO MATCH THE PIPE-ARCH WHEN APPLICABLE.
4. BANDS ARE NORMALLY FURNISHED AS FOLLOWS:
   - 12" THRU 48" 1-PIECE
   - 54" THRU 96" 2-PIECES
   - 102" THRU 144" 3-PIECES
5. BAND FASTENERS ARE ATTACHED WITH SPOT WELDS, RIVETS OR HAND WELDS.
6. DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES.
7. ORDER SHALL DESIGNATE GASKET OPTION, IF REQUIRED (SEE DETAILS ABOVE).

D-24 DIMPLE BAND DETAIL
NOT TO SCALE

Call before you Dig
Call 811
or
1-800-227-2600

REVISIONS

SHT.	DESCRIPTION	DATE	BY	APRD

ENGINEER LOGO

Christiansen & Company
Land Development · Design · Engineering
Est. 2007

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Riverside, California 92507
Ph: 951-920-4713 Fax: 951-405-8410
email:keith@cwcivil.com

ENGINEER SEAL

REGISTERED PROFESSIONAL ENGINEER
KEITH A. CHRISTIANSEN
No. 50085
CIVIL
STATE OF CALIFORNIA

SCALE:
DESIGN: KAC
DRAWN: CG
CHECKED: KAC
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DATE: DEC. 12, 2021

CITY OF MENIFEE
ENGINEERING DEPARTMENT

JONATHAN G. SMITH — RCE 61253 — DATE
DIRECTOR OF PUBLIC WORKS/ CITY ENGINEER — EXP. 6/30/23

RECOMMENDED BY: — DATE

SEAL

CITY OF MENIFEE
ENGINEERING DEPARTMENT
VILLAGE AT JUNIPERO
Tentative Tract Map No. 38340
UNDERGROUND STORAGE CHAMBERS

SHEET NO.
2
2 OF 2
PROJECT NO:

Appendix 3: Soils Information

Geotechnical Study and Other Infiltration Testing Data

Geotechnical Engineering Investigation

"The Village at Junipero Apartment Development"
SWC of Menifee Road and Heritage Lakes Drive
Menifee, California

Christiansen & Company
3649 Ninth Street
Riverside, California 92501

Attn.: Mr. Keith Christiansen

Project Number 17802-14
December 9, 2014

NorCal Engineering

Soils and Geotechnical Consultants
10641 Humbolt Street Los Alamitos, CA 90720
(562) 799-9469 Fax (562) 799-9459

December 9, 2014 Project Number 17802-14

Christiansen & Company
3649 Ninth Street
Riverside, California 92501

Attn.: Mr. Keith Christiansen

RE: **Geotechnical Engineering Investigation** - Proposed "The Village at Junipero Apartment Development" - Located at the Southwest Corner of Menifee Road and Heritage Lakes Drive, in the City of Menifee, California

Dear Mr. Christiansen:

Pursuant to your request, this firm has performed a Geotechnical Engineering Investigation in accordance with your authorization of signed proposal dated August 18, 2014 for the above referenced project. The purpose of this investigation is to evaluate the subsurface conditions of the subject site and to provide recommendations for the proposed residential development.

The scope of work included the following: 1) site reconnaissance; 2) subsurface geotechnical exploration and sampling; 3) laboratory testing; 4) engineering analysis of field and laboratory data; 5) and preparation of a geotechnical engineering report. It is the opinion of this firm that the proposed development is feasible from a geotechnical standpoint provided that the recommendations presented in this report are followed in the design and construction of the project.

1.0 Project Description

It is proposed to construct a multi-unit apartment development as shown on the attached conceptual site plan. The project will consist of twenty-four (24) apartment buildings including a new clubhouse and swimming pool on the 19.25-acre property. The two and/or three story buildings will be supported by conventional slab-on-grade foundation systems with perimeter-spread footings and isolated interior footings. Other improvements will consist of asphalt/concrete pavement, hardscape and landscaping. It is assumed that the proposed grading for the entire development will include cut and fill procedures. The latest grading plan shall be reviewed by this firm prior to submittal for city/county approval to determine the need for any additional study and revised recommendations pertinent to the proposed development, if necessary.

2.0 Site Description

The subject property is situated at the southwest corner of Menifee Road and Heritage Lakes Drive, in the City of Menifee. The generally rectangular shaped parcel is elongated in an east to west direction and topography of the relatively level parcel descending gradually from south to north on the order of a few feet. The site is an undeveloped lot currently covered with a low to moderate growth of vegetation consisting of natural grasses and weeds.

3.0 Site Exploration

The investigation consisted of the placement of two (2) subsurface exploratory borings by a truckmounted hollow stem auger to depths of 20 and 50 feet and eleven (11) subsurface exploratory trenches by a backhoe to depths ranging between 5 and 15 feet below current ground elevations. The explorations were visually classified and logged by a field engineer with locations of the subsurface explorations shown on the attached Site Plan. The exploratory borings and trenches revealed the existing earth materials to consist of a fill and natural soil. A detailed description of the subsurface conditions is listed on the excavation logs in Appendix A.

Fill: A fill and/or disturbed top soil classifying as brown, sandy SILT was encountered to a depth of 1 to 1½ feet. These soils were noted to be soft and dry to damp.

Natural: An undisturbed native soil classifying as a brown to grey and red brown, sandy SILT to a fine to coarse grained, silty to clayey SAND was encountered directly beneath the fill and observed to be stiff to very stiff and dense to very dense and damp to moist.

The overall engineering characteristics of the earth material were relatively uniform with each excavation. Groundwater was encountered at a depth of 36 feet and no caving occurred to the depth of our borings.

4.0 Laboratory Tests

Relatively undisturbed samples of the subsurface soils were obtained to perform laboratory testing and analysis for direct shear, consolidation tests, and to determine in-place moisture/densities. These relatively undisturbed ring samples were obtained by driving a thin-walled steel sampler lined with one inch long brass rings with an inside diameter of 2.42 inches into the undisturbed soils.

Standard penetration tests were obtained by driving an unlined steel sampler with an inside diameter of 1.5 inches into the soils. This standard penetrometer sampler was driven a total of eighteen inches with blow counts tallied every six inches. Blow count data is given on the Boring Logs in Appendix A. Bulk bag samples were obtained in the upper soils for expansion index tests and maximum density tests. All test results are included in Appendix B, unless otherwise noted.

4.1 **Field moisture content** (ASTM: D 2216) and the dry density of the ring samples were determined in the laboratory. This data is listed on the logs of explorations.

4.2 **Sieve analyses** (ASTM: D 422-63) and the percent by weight of soil finer than the No. 200 sieve (ASTM: 1140) were performed on selected soil samples. These results are shown later within the body of this report.

4.3 **Maximum density tests** (ASTM: D-1557-07) were performed on typical samples of the upper soils. Results of these tests are shown on Table I.

4.4 **Expansion index tests** (ASTM: D 4829-07) were performed on remolded samples of the upper soils. Results of these tests are provided on Table II.

4.5 **Atterberg Limits** (ASTM: D 4318-05) consisting of liquid limit, plastic limit and plasticity index were performed on representative soil samples. Results are shown on Table III.

4.6 **Corrosion tests** consisting of sulfate, pH, resistivity and chloride analysis to determine potential corrosive effects of soils on concrete and underground utilities. Test results are provided on Table IV.

4.7 **R-Value test** per California Test Method 301 was performed on a representative sample, which may be anticipated to be near subgrade to determine pavement design. Result provided within pavement section design section of report.

4.8 **Direct Shear tests** (ASTM: D-3080) were performed on undisturbed and disturbed samples of the subsurface soils. The test is performed under saturated conditions at loads of 1,000 lbs./sq.ft., 2,000 lbs./sq.ft., and 3,000 lbs./sq.ft. with results shown on Plates A to C.

4.9 **Consolidation tests** (ASTM: D-2435) were performed on undisturbed samples to determine the differential and total settlement which may be anticipated based upon the proposed loads. Water was added to the samples at a surcharge of one KSF and the settlement curves are plotted on Plates D to G.

5.0 Geologic Setting

The property is located in the Peninsular Ranges geomorphic province of California. The Peninsular Ranges province extends from the Los Angeles Basin southeast to Baja California and from the Pacific Ocean eastward to the Coachella Valley and Colorado Desert. The province consists of numerous northwest to southeast-trending mountain ranges and valleys that are geologically controlled by several major active faults. The site is located in the central portion of the Perris block, a generally stable area situated between two of these major faults; the Chino /Elsinore (roughly 8 miles southwest) and San Jacinto (roughly 10 miles northeast) fault zones.

5.1 Site Geology

The USGS Open File Report for the Romoland 7.5 minute quadrangle assigns the soil materials underlying the site as alluvial deposits bordering Cretaceous granitic rocks at the very western edge of the property. Exploration at the site encountered existing earth materials to consist of a fill and natural soil. A detailed description of the subsurface conditions is listed on the excavation logs in Appendix A.

5.2 Surface Fault Rupture

The property is not located in a Riverside County Recommended Earthquake Fault Study Zone, a Riverside County Land Information System (RCLIS) fault zone or an Alquist-Priolo (AP) earthquake fault zone. No indications of natural lineaments or other fault-related features indicative of Holocene or older faulting were noted in review of topographic and geologic maps pertaining to the area and no indications of faulting were noted during our reconnaissance at and in the vicinity of the site.

Based on our evaluation, we conclude that there are no active or potentially active faults trending towards or through the parcels, and additional fault investigations are not necessary. The potential for surface fault rupture to occur at the parcels is considered low. As is the case with most of southern California, the properties are expected to experience strong ground shaking during the lifetime of the project.

5.3 Slope Stability-Landslides, Debris Flows and Rock Falls

The property is not mapped in an area considered susceptible to seismically induced landslides or rockfalls as shown on the Riverside County Earthquake-Induced Slope Instability Map. The property is situated on gently sloped ground well away from topography with any significant relief. The potential for landslides, debris flows or rock falls to impact the site is considered low.

5.4 Subsidence and Fissuring

The site is located in an area designated on the Riverside County Land Information System as "susceptible" to subsidence. According to the Riverside County Hazards report (Earth Consultants International, 2001), subsidence in Riverside County has been linked to significant fluctuations in groundwater levels within deep alluvial basins, and generally, the subsidence occurs throughout the valley region. Three areas have been identified with documented subsidence; the Elsinore Trough, the San Jacinto Valley, and the southern Coachella Valley.

Fissuring associated with land subsidence is well-documented in Riverside County. Displacements consisting of fissuring and ground cracking occur at, or near, valley margins. Many areas associated with fissuring are along active faults.

Based on our evaluation, the potential for subsidence and ground fissures at the site is considered low. The property is not situated within any of the three areas of Riverside County associated with subsidence and resulting fissuring, and the property is not situated at a valley margin or along an active fault.

5.5 Seiches

The parcels are not in proximity to an enclosed or partially enclosed body of water or basin with the potential to hold water; the properties are not subject to seiche inundation.

5.6 Water Erosion

The parcels are not situated in a flood zone, but could be susceptible to erosion by water without appropriate erosion control measures.

6.0 Seismicity Evaluation

The proposed development lies outside of any Alquist Priolo Special Studies Zone and the potential for damage due to direct fault rupture is considered very remote. The site is located in an area of high regional seismicity and a maximum horizontal ground acceleration of 0.40g may occur from a Magnitude 6.8 earthquake along the Elsinore (Glen Ivy) fault zone, which is located approximately 13 kilometers away. Ground shaking originating from earthquakes along other active faults in the region is expected to induce lower horizontal accelerations due to smaller anticipated earthquakes and/or greater distances to other faults.

The seismic design of the project has been updated to the latest 2010 ASCE 7-10 (with July 2013 errata) standards and the mapped seismic ground motions were provided by using the Java based program available from the United States Geological Survey (USGS) website: http://geohazards.usgs.gov/designmaps/us/application.php. The earthquake design parameters are in accordance with the 2013 California Building Code (CBC) and are listed below.

Seismic Design Parameters

Site Location	Latitude	33.724°
	Longitude	-117.156°
Site Class		D
Risk Category		I/II/III
Maximum Spectral Response Acceleration	S_S	1.500g
	S_1	0.600g
Adjusted Maximum Acceleration	S_{MS}	1.500g
	S_{M1}	0.900g
Design Spectral Response Acceleration Parameters	S_{DS}	1.000g
	S_{D1}	0.600g

7.0 Liquefaction Evaluation

The site is expected to experience ground shaking and earthquake activity that is typical of Southern California area. It is during severe ground shaking that loose, granular soils below the groundwater table can liquefy. A review of the exploratory boring log and the laboratory test results on selected soil samples obtained indicate the following soil classifications, field blowcounts and amounts of fines passing through the No. 200 sieve.

Field Blowcount and Gradation Data

Location	Classification	Blowcounts (blows/ft)	Relative Density	% Passing No. 200 Sieve
B-1 @ 5'	SC	59	Very Dense	47
B-1 @ 10'	SM	73	Very Dense	22
B-1 @ 15'	SC	46	Very Dense	32
B-1 @ 20'	SM	67	Very Dense	10
B-1 @ 25'	SC	>50	Very Dense	32
B-1 @ 30'	SM	72	Very Dense	19
B-1 @ 35'	CL	46	Very Dense	73
B-1 @ 40'	SC	62	Very Dense	32
B-1 @ 45'	SM	39	Very Dense	17
B-1 @ 50'	SM	>50	Very Dense	20

Groundwater was encountered at a depth of 36 feet below existing ground surface from our field exploration. Based upon information in the City of Riverside Public Safety Element "Liquefaction Zones (2006)", the subject site is situated in an area of low generalized liquefaction susceptibility.

Our analysis indicates the potential for liquefaction at this site is considered to be low due to the density of the subsurface soils. The seismic-induced settlements shall be on the order of less than one-half inch and should occur rather uniformly across the lot. Differential settlements would be on the order of less than one-half inch over a 50 feet distance in the building area. Thus, the design of the proposed construction in conformance with the latest Building Code provisions for earthquake design is expected to provide mitigation of ground shaking hazards that are typical to Southern California.

8.0 Conclusions and Recommendations

Based upon our evaluations, the proposed development is acceptable from a geotechnical engineering standpoint. By following the recommendations and guidelines set forth in our report, the structures will be safe from excessive settlements under the anticipated design loadings and conditions. The proposed development shall meet all requirements of the City Building Ordinance and will not impose any adverse effect on existing adjacent structures.

The following recommendations are based upon geotechnical conditions encountered in our field investigation and laboratory data. Therefore, these surface and subsurface conditions could vary across the site. Variations in these conditions may not become evident until the commencement of grading operations and any unusual conditions which may be encountered in the course of the project development may require the need for additional study and revised recommendations.

It is recommended that site inspections be performed by a representative of this firm during all grading and construction of the development to verify the findings and recommendations documented in this report. The following sections present a discussion of geotechnical related requirements for specific design recommendations of different aspects of the project.

8.1 Site Grading Recommendations

Any vegetation and or demolition debris shall be removed and hauled from proposed grading areas prior to the start of grading operations. Existing vegetation shall not be mixed or disced into the soils. Any removed soils may be reutilized as compacted fill once any deleterious material or oversized materials (in excess of eight inches) is removed. Grading operations shall be performed in accordance with the attached "Specifications for Compacted Fill Operations".

8.1.1 **Removal and Recompaction Recommendations**

All disturbed top soils and fill (about 1 to 1½ feet below existing ground surface) shall be removed to competent native material, the exposed surface scarified to a depth of 12 inches, brought to within 2% of optimum moisture content and compacted to a minimum of 90% of the laboratory standard (ASTM: D-1557) prior to placement of any additional compacted fill soils, foundations, slabs-on-grade and pavement. Grading shall extend a minimum of five horizontal feet outside the edges of foundations or equidistant to the depth of fill placed, whichever is greater.

It is possible that isolated areas of undiscovered fill not described in this report are present on site. If found, these areas should be treated as discussed earlier. A diligent search shall also be conducted during grading operations in an effort to uncover any underground structures, irrigation or utility lines. If encountered, these structures and lines shall be either removed or properly abandoned prior to the proposed construction.

Any imported fill material should be preferably soil similar to the upper soils encountered at the subject site. All soils shall be approved by this firm prior to importing at the site and will be subjected to additional laboratory testing to assure concurrence with the recommendations stated in this report.

Care should be taken to provide or maintain adequate lateral support for all adjacent improvements and structures at all times during the grading operations and construction phase. Adequate drainage away from the structures, pavement and slopes should be provided at all times.

If placement of slabs-on-grade and pavement is not completed immediately upon completion of grading operations, additional testing and grading of the areas may be necessary prior to continuation of construction operations. Likewise, if adverse weather conditions occur which may damage the subgrade soils, additional assessment by the geotechnical engineer as to the suitability of the supporting soils may be needed.

8.1.2 **Fill Blanket Recommendations**

In areas of transition between the underlying native material and engineered fill, additional overexcavation of the native material consisting of a depth of two feet below proposed foundations is required to mitigate the potential of differential settlement. This fill shall extend a minimum of five horizontal feet or to the depth of vertical overexcavation, whichever is greater, beyond the outside edge of the perimeter foundation.

8.2 **Shrinkage and Subsidence**

Results of our in-place density tests reveal that the soil shrinkage will be on the order of 5 to 15% due to excavation and recompaction, based upon the assumption that the fill is compacted to 92% of the maximum dry density per ASTM standards. Subsidence should be 0.2 feet due to earthwork operations. The volume change does not include any allowance for vegetation or organic stripping, removal of subsurface improvements or topographic approximations. Although these values are only approximate, they represent our best estimate of lost yardage which will likely occur during grading. If more accurate shrinkage and subsidence factors are needed, it is recommended that field testing using the actual equipment and grading techniques should be conducted.

8.3 **Temporary Excavations**

Temporary unsurcharged excavations in the existing site materials less than 4 feet high may be made at a vertical gradient unless cohesionless soils are encountered. In areas where soils with little or no binder are encountered, where adverse geological conditions are exposed, or where excavations are adjacent to existing structures, shoring, slot-cutting, or flatter excavations may be required. The temporary cut slope gradients given do not preclude local raveling and sloughing. All excavations shall be made in accordance with the requirements of CAL-OSHA and other public agencies having jurisdiction. Care should be taken to provide or maintain adequate lateral support for all adjacent improvements and structures at all times during the grading operations and construction phase.

8.4 **Foundation Design**

All foundations may be designed utilizing the following safe bearing capacities for an embedded depth of 24 inches into approved fill materials with the corresponding widths:

Allowable Safe Bearing Capacity (psf)

Width (ft)	Continuous Foundation	Isolated Foundation
1.5	2000	2500
2.0	2075	2575
4.0	2375	2875
6.0	2500	3000

The bearing value may be increased by 500 psf for each additional foot of depth in excess of the 24-inch minimum depth, up to a maximum of 4,000 psf. Any foundations located along the property lines or where lateral overexcavation is not possible may utilize a safe bearing capacity of 1,500 psf. A one third increase may be used when considering short-term loading and seismic forces.

All continuous foundations shall be reinforced a minimum of one No. 4 bar, top and bottom. Isolated foundations shall be reinforced per the discretion of the project structural engineer. A representative of this firm shall inspect all foundation excavations prior to pouring concrete.

8.5 **Settlement Analysis**

Resultant pressure curves for the consolidation tests are shown on Plates D to G. Computations utilizing these curves and the recommended safe bearing capacities reveal that the foundations will experience settlements on the order of 3/4 inch and differential settlements of less than 1/4 inch.

8.6 **Lateral Resistance**

The following values may be utilized in resisting lateral loads imposed on the structure. Requirements of the California Building Code should be adhered to when the coefficient of friction and passive pressures are combined.

Coefficient of Friction – 0.40

Equivalent Passive Fluid Pressure = 250 lbs./cu.ft.

Maximum Passive Pressure = 2,500 lbs./cu.ft.

The passive pressure recommendations are valid only for approved compacted fill soils.

8.7 **Retaining Wall Design Parameters**

Active earth pressures against retaining wall will be equal to the pressures developed by the following fluid densities. These values are for **granular backfill material** placed behind the walls at various ground slopes above the walls.

Surface Slope of Retained Materials (Horizontal to Vertical)	Equivalent Fluid Density (lb./cu.ft.)
Level	30
5 to 1	35
4 to 1	38
3 to 1	40
2 to 1	45

Any applicable short-term construction surcharges and seismic forces should be added to the above lateral pressure values. All walls shall be waterproofed as needed and protected from hydrostatic pressure by a reliable permanent subdrain system. The subsurface drainage system shall consist of 4-inch diameter perforated PVC pipe encased with gravel. The granular backfill to be utilized immediately adjacent to the basement walls shall consist of an approved granular soils with a sand equivalency greater than 30. This backfill zone of free draining material shall consist of a wedge beginning a minimum of one horizontal foot from the base of the wall extending upward at an inclination of no less than 3/4 to 1 (horizontal to vertical).

The seismic-induced lateral soil pressure may be computed using a triangular pressure distribution with the maximum value at the top of the wall. The maximum lateral pressure of (20pcf) H, where H is the height of the retained soils above the wall footing should be utilized in final design of retaining walls. Sliding resistance values and passive fluid pressures given in our referenced report may be increased by 1/3 during short-term wind and seismic loading conditions.

8.8 **Slab Design**

All concrete slabs-on-grade shall be at least four inches reinforced with No. 3 bars at sixteen inch spacing in each direction and positioned in the center of the slab and placed on approved subgrade soils. These slabs shall be placed on approved subgrade soils moisture conditioned to above optimum moisture content to a depth of twelve inches.

A vapor retarder (10-mil minimum thickness) should be utilized in areas which would be sensitive to the infiltration of moisture. This retarder shall meet requirements of ASTM E 96, *Water Vapor Transmission of Materials* and ASTM E 1745, *Standard Specification for Water Vapor Retarders used in Contact with Soil or Granular Fill Under Concrete Slabs*. The vapor retarder shall be installed in accordance with procedures stated in ASTM E 1643, *Standard practice for Installation of Water Vapor Retarders used in Contact with Earth or Granular Fill Under Concrete Slabs*.

The moisture retarder may be placed directly upon approved subgrade soils, although one to two inches of sand beneath the membrane is desirable. The subgrade upon which the retarder is placed shall be smooth and free of rocks, gravel or other protrusions which may damage the retarder. Use of sand above the retarder is under the purview of the structural engineer; if sand is used over the retarder, it should be placed in a dry condition.

8.9 **Pavement Section Design**

The table below provides a preliminary pavement design based upon an R-Value of 28 for the proposed pavement areas. Final pavement design may need to be based on R-Value testing of the subgrade soils near the conclusion of rough grading to assure that these soils are consistent with those assumed in this preliminary design.

Type of Traffic	Traffic Index	Asphaltic Concrete (in)	Base Material (in)
Automobile Parking Stalls	4.0	3.0	4.0
Light Vehicle Circulation Areas	5.5	3.5	7.0

All concrete slabs to be utilized for pavement shall be a minimum of six inches in thickness and placed on approved subgrade soils. Client should submit anticipated traffic loadings, when available, so that pavement sections may be reviewed to determine adequacy to support these loads.

Any approved base material shall consist of a Class II aggregate or equivalent and should be compacted to a minimum of 95% relative compaction. All pavement materials shall conform to the requirements set forth by the City of Menifee. The base material and asphaltic concrete should be tested prior to delivery to the site and during placement to determine conformance with the project specifications. A pavement engineer shall designate the specific asphalt mix design to meet the required project specifications.

All pavement areas shall have positive drainage toward an approved outlet from the site. Drain lines behind curbs and/or adjacent to landscape areas should be considered by client and the appropriate design engineers to prevent water from infiltrating beneath pavement. If such infiltration occurs, damage to pavement, curbs and flow lines, especially on sites with expansive soils, may occur during the life of the project.

8.10 **Utility Trench and Excavation Backfill**

Trenches from installation of utility lines and other excavations may be backfilled with on-site soils or approved imported soils compacted to a minimum of 90% relative compaction. All utility lines shall be properly bedded with clean sand having a sand equivalency rating of 30 (SE > 30) or more. This bedding material shall be thoroughly water jetted around the pipe structure prior to placement of compacted backfill soils.

8.11 **Corrosion Design Criteria**

Representative samples of the surficial soils, typical of the subgrade soils expected to be encountered within foundation excavations and underground utilities were tested for corrosion potential. The minimum resistivity value obtained for the samples tested is representative of an environment that may be corrosive to metals. The soil pH value was considered mildly acidic and may have a significant effect on soil corrosivity. Consideration should be given to corrosion protection systems for buried metal such as protective coatings, wrappings or the use of PVC where permitted by local building codes.

According to Table 4.3.1, ACI 318 Building Code and Commentary, these contents revealed negligible levels of sulfate exposure. Therefore, a Type II cement according to latest CBC specifications may be utilized for building foundations at this time. Additional sulfate tests shall be performed at the completion of site grading to assure that these soils are consistent with the recommendations stated in this design. Sulfate test results may be found on the attached Table IV.

8.12 **Expansive Soil**

Since expansive soils were encountered, special attention should be given to the project design and maintenance. The attached *Expansive Soil Guidelines* should be reviewed by the engineers, architects, owner, maintenance personnel and other interested parties and considered during the design of the project and future property maintenance.

9.0 Closure

The recommendations and conclusions contained in this report are based upon the soil conditions uncovered in our test excavations. No warranty of the soil condition between our excavations is implied. NorCal Engineering should be notified for possible further recommendations if unexpected to unfavorable conditions are encountered during construction phase. It is the responsibility of the owner to ensure that all information within this report is submitted to the Architect and appropriate Engineers for the project. This firm should have the opportunity to review the final plans to verify that all our recommendations are incorporated. This report and all conclusions are subject to the review of the controlling authorities for the project.

A preconstruction conference should be held between the developer, general contractor, grading contractor, city inspector, architect, and soil engineer to clarify any questions relating to the grading operations and subsequent construction. Our representative should be present during the grading operations and construction phase to certify that such recommendations are complied within the field.

This geotechnical investigation has been conducted in a manner consistent with the level of care and skill exercised by members of our profession currently practicing under similar conditions in the Southern California area. No other warranty, expressed or implied is made.

We appreciate this opportunity to be of service to you. If you have any further questions, please do not hesitate to contact the undersigned.

Respectfully submitted,
NORCAL ENGINEERING

Keith D. Tucker
Project Engineer
R.G.E. 841

Scott D. Spensiero
Project Manager

Andrew Stone
Project Geologist
C.E.G. 1648

REFERENCES

California Division of Mines and Geology, 1997, Guidelines for Evaluating and Mitigating Seismic Hazards in California: Special Publication 117.

California Building Standards Commission, California Building Code, 2013.

Geologic Map of the Romoland 7.5 Minute Quadrangle, Riverside County, California, by D.M. Morton, published by USGS as Open-File Report OF-90-701

Preliminary Digital Geologic Map of the Santa Ana 30' x 60' Quadrangle, Southern California, by D.M. Morton, published by the United States Geological Survey as Open-File Report 99-172

2010 Fault Activity Map of California, prepared as Geologic Data Map No. 6 by the California Geological Survey, C.W. Jennings and W.A. Bryant

Safety Element of the Riverside County General Plan, Riverside County Intergrated Project

Riverside County Land Information System

SPECIFICATIONS FOR PLACEMENT OF COMPACTED FILL

Excavation

Any existing low density soils and/or saturated soils shall be removed to competent natural soil under the inspection of the Soils Engineering Firm. After the exposed surface has been cleansed of debris and/or vegetation, it shall be scarified until it is uniform in consistency, brought to the proper moisture content and compacted to a minimum of 90% relative compaction (in accordance with ASTM: D-1557).

In any area where a transition between fill and native soil or between bedrock and soil are encountered, additional excavation beneath foundations and slabs will be necessary in order to provide uniform support and avoid differential settlement of the structure.

Material For Fill

The on-site soils or approved import soils may be utilized for the compacted fill provided they are free of any deleterious materials and shall not contain any rocks, brick, asphaltic concrete, concrete or other hard materials greater than eight inches in maximum dimensions. Any import soil must be approved by the Soils Engineering firm a minimum of 24 hours prior to importation of site.

Placement of Compacted Fill Soils

The approved fill soils shall be placed in layers not excess of six inches in thickness. Each lift shall be uniform in thickness and thoroughly blended. The fill soils shall be brought to within 2% of the optimum moisture content, unless otherwise specified by the Soils Engineering firm. Each lift shall be compacted to a minimum of 90% relative compaction (in accordance with ASTM: D-1557) and approved prior to the placement of the next layer of soil. Compaction tests shall be obtained at the discretion of the Soils Engineering firm but to a minimum of one test for every 500 cubic yards placed and/or for every 2 feet of compacted fill placed.

The minimum relative compaction shall be obtained in accordance with accepted methods in the construction industry. The final grade of the structural areas shall be in a dense and smooth condition prior to placement of slabs-on-grade or pavement areas. No fill soils shall be placed, spread or compacted during unfavorable weather conditions. When the grading is interrupted by heavy rains, compaction operations shall not be resumed until approved by the Soils Engineering firm.

Grading Observations

The controlling governmental agencies should be notified prior to commencement of any grading operations. This firm recommends that the grading operations be conducted under the observation of a Soils Engineering firm as deemed necessary. A 24 hour notice must be provided to this firm prior to the time of our initial inspection.

Observation shall include the clearing and grubbing operations to assure that all unsuitable materials have been properly removed; approve the exposed subgrade in areas to receive fill and in areas where excavation has resulted in the desired finished grade and designate areas of overexcavation; and perform field compaction tests to determine relative compaction achieved during fill placement. In addition, all foundation excavations shall be observed by the Soils Engineering firm to confirm that appropriate bearing materials are present at the design grades and recommend any modifications to construct footings.

Expansive Soil Guidelines

The following expansive soil guidelines are provided for your project. The intent of these guidelines is to inform you, the client, of the importance of proper design and maintenance of projects supported on expansive soils. ***You, as the owner or other interested party, should be warned that you have a duty to provide the information contained in the soil report including these guidelines to your design engineers, architects, landscapers and other design parties in order to enable them to provide a design that takes into consideration expansive soils.***

In addition, you should provide the soil report with these guidelines to any property manager, lessee, property purchaser or other interested party that will have or assume the responsibility of maintaining the development in the future.

Expansive soils are fine-grained silts and clays which are subject to swelling and contracting. The amount of this swelling and contracting is subject to the amount of fine-grained clay materials present in the soils and the amount of moisture either introduced or extracted from the soils. Expansive soils are divided into five categories ranging from "very low" to "very high". Expansion indices are assigned to each classification and are included in the laboratory testing section of this report. *If the expansion index of the soils on your site, as stated in this report, is 21 or higher, you have expansive soils.* The classifications of expansive soils are as follows:

Classification of Expansive Soil*

Expansion Index	Potential Expansion
0-20	Very Low
21-50	Low
51-90	Medium
91-130	High
Above 130	Very High

When expansive soils are compacted during site grading operations, care is taken to place the materials at or slightly above optimum moisture levels and perform proper compaction operations. Any subsequent excessive wetting and/or drying of expansive soils will cause the soil materials to expand and/or contract. These actions are likely to cause distress of foundations, structures, slabs-on-grade, sidewalks and pavement over the life of the structure. ***It is therefore imperative that even after construction of improvements, the moisture contents are maintained at relatively constant levels, allowing neither excessive wetting or drying of soils.***

Evidence of excessive wetting of expansive soils may be seen in concrete slabs, both interior and exterior. Slabs may lift at construction joints producing a trip hazard or may crack from the pressure of soil expansion. Wet clays in foundation areas may result in lifting of the structure causing difficulty in the opening and closing of doors and windows, as well as cracking in exterior and interior wall surfaces. In extreme wetting of soils to depth, settlement of the structure may eventually result. Excessive wetting of soils in landscape areas adjacent to concrete or asphaltic pavement areas may also result in expansion of soils beneath pavement and resultant distress to the pavement surface.

Excessive drying of expansive soils is initially evidenced by cracking in the surface of the soils due to contraction. Settlement of structures and on-grade slabs may also eventually result along with problems in the operation of doors and windows.

Projects located in areas of expansive clay soils will be subject to more movement and "hairline" cracking of walls and slabs than similar projects situated on non-expansive sandy soils. There are, however, measures that developers and property owners may take to reduce the amount of movement over the life the development. The following guidelines are provided to assist you in both design and maintenance of projects on expansive soils:

- Drainage away from structures and pavement is essential to prevent excessive wetting of expansive soils. Grades to the latest building code should be designed and maintained to allow flow of irrigation and rain water to approved drainage devices or to the street. Any "ponding" of water adjacent to buildings, slabs and pavement after rains is evidence of poor drainage; the installation of drainage devices or regrading of the area may be required to assure proper drainage. Installation of rain gutters is also recommended to control the introduction of moisture next to buildings. Gutters should discharge into a drainage device or onto pavement which drains to roadways.

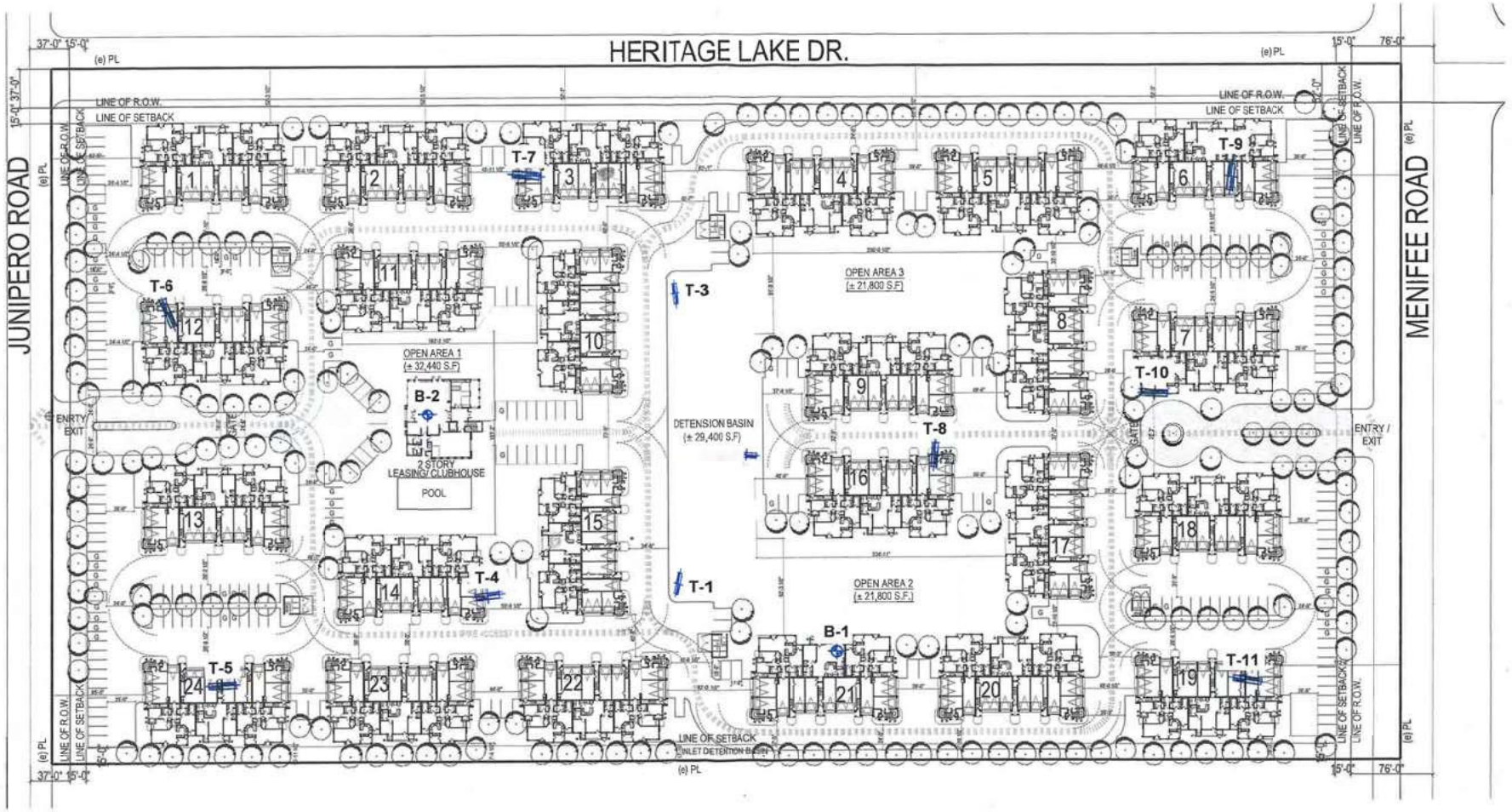
- Irrigation should be strictly controlled around building foundations, slabs and pavement and may need to be adjusted depending upon season. This control is essential to maintain a relatively uniform moisture content in the expansive soils and to prevent swelling and contracting. Over-watering adjacent to improvements may result in damage to those improvements. NorCal Engineering makes no specific recommendations regarding landscape irrigation schedules.

- Planting schemes for landscaping around structures and pavement should be analyzed carefully. Plants (including sod) requiring high amounts of water may result in excessive wetting of soils. Trees and large shrubs may actually extract moisture from the expansive soils, thus causing contraction of the fine-grained soils.

- Thickened edges on exterior slabs will assist in keeping excessive moisture from entering directly beneath the concrete. A six-inch thick or greater deepened edge on slabs may be considered. Underlying interior and exterior slabs with 6 to 12 inches or more of non-expansive soils and providing presaturation of the underlying clayey soils as recommended in the soil report will improve the overall performance of on-grade slabs.

- Increase the amount of steel reinforcing in concrete slabs, foundations and other structures to resist the forces of expansive soils. The precise amount of reinforcing should be determined by the appropriate design engineers and/or architects.

- Recommendations of the soil report should always be followed in the development of the project. Any recommendations regarding presaturation of the upper subgrade soils in slab areas should be performed in the field and verified by the Soil Engineer.



N

0' 50' 100' 200'

1 INCH = 100 FEET

NorCal Engineering
SOILS AND GEOTECHNICAL CONSULTANTS

PROJECT 17802-14 | DATE DECEMBER 2014

SITE PLAN

List of Appendices
(in order of appearance)

Appendix A - Log of Excavations

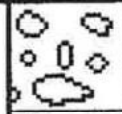
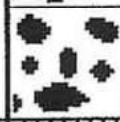
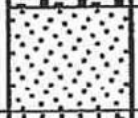
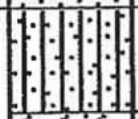
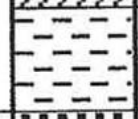
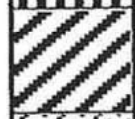
- Log of Borings B-1 and B-2
- Log of Trenches T-1 to T-11

Appendix B - Laboratory Tests

- Table I - Maximum Dry Density
- Table II – Expansion
- Table III – Atterberg Limits
- Table IV – Corrosion
- R-Value

- Plates A to C - Direct Shear
- Plates D to G - Consolidation

Appendix A

MAJOR DIVISION			GRAPHIC SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS — MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS — MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SAND AND SANDY SOILS — MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SAND (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINE (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND-SILT MIXTURES
				SC	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE GRAINED SOILS — MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

UNIFIED SOIL CLASSIFICATION SYSTEM

KEY:

- ■ Indicates 2.5-inch Inside Diameter. Ring Sample.
- ☒ Indicates 2-inch OD Split Spoon Sample (SPT).
- ⧅ Indicates Shelby Tube Sample.
- ◫ Indicates No Recovery.
- ◧ Indicates SPT with 140# Hammer 30 in. Drop.
- ☑ Indicates Bulk Sample.
- ◩ Indicates Small Bag Sample.
- ◨ Indicates Non-Standard
- ⊠ Indicates Core Run.

COMPONENT PROPORTIONS

DESCRIPTIVE TERMS	RANGE OF PROPORTION
Trace	1 - 5%
Few	5 - 10%
Little	10 - 20%
Some	20 - 35%
And	35 - 50%

COMPONENT DEFINITIONS

COMPONENT	SIZE RANGE
Boulders	Larger than 12 in
Cobbles	3 in to 12 in
Gravel	3 in to No 4 (4.5mm)
Coarse gravel	3 in to 3/4 in
Fine gravel	3/4 in to No 4 (4.5mm)
Sand	No. 4 (4.5mm) to No. 200 (0.074mm)
Coarse sand	No. 4 (4.5 mm) to No. 10 (2.0 mm)
Medium sand	No. 10 (2.0 mm) to No. 40 (0.42 mm)
Fine sand	No. 40 (0.42 mm) to No. 200 (0.074 mm)
Silt and Clay	Smaller than No. 200 (0.074 mm)

MOISTURE CONTENT

DRY	Absence of moisture, dusty, dry to the touch.
DAMP	Some perceptible moisture; below optimum
MOIST	No visible water; near optimum moisture content
WET	Visible free water, usually soil is below water table.

RELATIVE DENSITY OR CONSISTENCY VERSUS SPT N -VALUE

COHESIONLESS SOILS		COHESIVE SOILS		
Density	N (blows/ft)	Consistency	N (blows/ft)	Approximate Undrained Shear Strength (psf)
Very Loose	0 to 4	Very Soft	0 to 2	< 250
Loose	4 to 10	Soft	2 to 4	250 - 500
Medium Dense	10 to 30	Medium Stiff	4 to 8	500 - 1000
Dense	30 to 50	Stiff	8 to 15	1000 - 2000
Very Dense	over 50	Very Stiff	15 to 30	2000 - 4000
		Hard	over 30	> 4000

Christiansen & Company 17802-14	Log of Boring B-1

Boring Location: Menifee	
Date of Drilling: 11/21/14	Groundwater Depth: 36'
Drilling Method: Simco 2800HS	
Hammer Weight: 140 lbs	Drop: 30"
Surface Elevation: Not Measured	

Depth (feet)	Lith-ology	Material Description	Samples		Laboratory		
			Type	Blow Counts	Moisture	Dry Density	% Passing 200 Sieve
0		FILL Sandy SILT Brown, soft, dry					
		NATURAL Sandy SILT Brown, stiff to very stiff, damp					
5			☒	15/26/33	14.0		47
		Clayey (fine to medium grained) SAND Red-brown, dense, moist					
10		Silty (fine to medium grained) SAND Light brown to grey-brown, very dense, moist; slightly clayey with gravel	☒	15/38/35	7.8		22
15			☒	13/21/25	15.0		32
20			☒	28/32/35	4.6		10
25			☒	19/50-5"	11.6		32
30			☒	27/34/38	11.7		19
		Clayey SILT Grey-brown, very stiff, very moist					
35							

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Christiansen & Company 17802-14	Log of Boring B-1

Boring Location: Menifee	
Date of Drilling: 11/21/14	Groundwater Depth: 36'
Drilling Method: Simco 2800HS	
Hammer Weight: 140 lbs	Drop: 30"
Surface Elevation: Not Measured	

Depth (feet)	Lith-ology	Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: % Passing 200 Sieve
35		Clayey SILT Grey-brown, very stiff, very moist	X	18/22/24	25.8		73
		Silty (fine to coarse grained) SAND Brown, very dense, moist; slightly clayey with gravel Groundwater encountered 36' bgs					
40			X	25/32/30	19.1		32
45			X	13/18/21	16.8		17
50			X	35/50-5"	19.6		20
		Boring completed at depth of 51'					
55							
60							
65							
70							

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Christiansen & Company 17802-14	Log of Boring B-2

Boring Location: Menifee	
Date of Drilling: 11/21/14	Groundwater Depth: None Encountered
Drilling Method: Simco 2800HS	
Hammer Weight: 140 lbs	Drop: 30"
Surface Elevation: Not Measured	

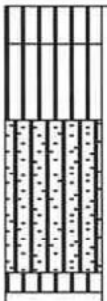
Depth (feet)	Lith-ology	Material Description	Samples		Laboratory		
			Type	Blow Counts	Moisture	Dry Density	% Passing 200 Sieve
0		FILL Silty (fine grained) SAND Brown, loose, dry					
		NATURAL Sandy SILT Brown, stiff, moist	■		12.5	104.7	
5							
		Sandy SILT Brown, stiff to very stiff, moist	■		14.4	105.3	
10							
			■		15.6	107.4	
15							
			■		13.7	105.5	
20		Boring completed at depth of 20'					
25							
30							
35							

GWT not encountered

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Christiansen & Company 17802-14	Log of Trench T-1
Boring Location: Menifee	
Date of Drilling: 11/22/14	Groundwater Depth: None Encountered
Drilling Method: Backhoe	
Hammer Weight:	Drop:
Surface Elevation: Not Measured	



Depth (feet)	Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: % Passing 200 Sieve
0	FILL Sandy SILT Brown, soft, damp					
	NATURAL Sandy SILT Brown, stiff, damp					
5	Silty (fine to coarse grained) SAND Brown, very dense, damp; with occasional gravel and slightly clay					
	Sandy SILT Brown, very stiff, moist; slight clay content					
10	Trench completed at depth of 7.5'					
15						
20						
25						
30						
35						

GWT not encountered

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECT\17802-14 SI.log Date: 12/9/2014

Christiansen & Company 17802-14	Log of Trench T-2
Boring Location: Menifee	
Date of Drilling: 11/22/14	Groundwater Depth: None Encountered
Drilling Method: Backhoe	
Hammer Weight:	Drop:
Surface Elevation: Not Measured	

Depth (feet)	Lith-ology	Material Description	Samples		Laboratory		
			Type	Blow Counts	Moisture	Dry Density	% Passing 200 Sieve
0		FILL Sandy SILT Brown, soft, damp					
		NATURAL Sandy SILT Brown, stiff, damp; slightly clay					
5		GWT not encountered Trench completed at depth of 5'					
10							
15							
20							
25							
30							
35							

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Christiansen & Company 17802-14	Log of Trench T-3

Boring Location: Menifee	
Date of Drilling: 11/22/14	Groundwater Depth: None Encountered
Drilling Method: Backhoe	
Hammer Weight:	Drop:
Surface Elevation: Not Measured	

Depth (feet)	Lith-ology	Material Description	Samples		Laboratory		
			Type	Blow Counts	Moisture	Dry Density	% Passing 200 Sieve
0		FILL Sandy SILT Brown, soft, damp					
		NATURAL Sandy SILT Brown, stiff to very stiff, damp; with some clay					
5		GWT not encountered					
		Trench completed at depth of 7.5'					
10							
15							
20							
25							
30							
35							

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECT\17802-14 SI.log Date: 12/9/2014

Christiansen & Company 17802-14	Log of Trench T-4
Boring Location: Menifee	
Date of Drilling: 11/22/14	**Groundwater Depth: None Encountered**
Drilling Method: Backhoe	
Hammer Weight:	**Drop:**
Surface Elevation: Not Measured	

Depth (feet)	Lith-ology	Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: % Passing 200 Sieve
0		FILL Sandy SILT Brown, soft, dry	■		3.2	106.6	
		NATURAL Sandy SILT Brown, stiff to very stiff, moist					
5		Silty (fine to coarse grained) SAND Brown, dense to very dense, damp; with occasional gravel and slightly clayey	■		6.9	110.3	
10		Trench completed at depth of 10'	■		4.2	115.1	
15							
20							
25							
30							
35							

GWT not encountered

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Christiansen & Company 17802-14	Log of Trench T-5
Boring Location: Menifee	
Date of Drilling: 11/22/14	Groundwater Depth: None Encountered
Drilling Method: Backhoe	
Hammer Weight:	Drop:
Surface Elevation: Not Measured	

Depth (feet)	Lith-ology	Material Description	Samples		Laboratory		
			Type	Blow Counts	Moisture	Dry Density	% Passing 200 Sieve
0		FILL Sandy SILT Brown, soft, dry					
		NATURAL Sandy SILT Brown, stiff, moist					
5		Silty (fine to coarse grained) SAND Brown, dense to very dense, damp; with occasional gravel and slightly clay			5.9	108.9	
10		Trench completed at depth of 10'			5.1	113.7	
15							
20							
25							
30							
35							

GWT not encountered

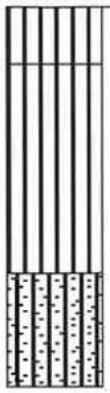
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Christiansen & Company 17802-14	Log of Trench T-6
Boring Location: Menifee	
Date of Drilling: 11/22/14	Groundwater Depth: None Encountered
Drilling Method: Backhoe	
Hammer Weight:	Drop:
Surface Elevation: Not Measured	

Depth (feet)	Lith-ology	Material Description	Samples		Laboratory		
			Type	Blow Counts	Moisture	Dry Density	% Passing 200 Sieve
0		FILL Sandy SILT Brown, soft, dry					
		NATURAL Sandy SILT Brown, stiff to very stiff, moist; with trace of clay	■		11.4	115.2	
5		GWT not encountered					
		Silty (fine to coarse grained) SAND Brown, very dense, moist	■		6.7	117.9	
		Refusal at depth of 8' bgs					
10							
15							
20							
25							
30							
35							

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECT\17802-14 SI.log Date: 12/9/2014

Christiansen & Company 17802-14	Log of Trench T-7
Boring Location: Menifee	
Date of Drilling: 11/22/14	Groundwater Depth: None Encountered
Drilling Method: Backhoe	
Hammer Weight:	Drop:
Surface Elevation: Not Measured	



Depth (feet)	Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: % Passing 200 Sieve
0	FILL Sandy SILT Brown, soft, dry	■		13.9	107.6	
	NATURAL Sandy SILT Brown, stiff to very stiff, moist	■		14.7	110.3	
5						
	Silty (fine to coarse grained) SAND Brown, very dense, moist					
10	Trench completed at depth of 10'	■		7.8	116.3	
15						
20						
25						
30						
35						

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Christiansen & Company 17802-14	Log of Trench T-8
Boring Location: Menifee	
Date of Drilling: 11/22/14	Groundwater Depth: None Encountered
Drilling Method: Backhoe	
Hammer Weight:	Drop:
Surface Elevation: Not Measured	

Depth (feet)	Lith-ology	Material Description	Samples		Laboratory		
			Type	Blow Counts	Moisture	Dry Density	% Passing 200 Sieve
0		FILL Sandy SILT Brown, soft, dry					
		NATURAL Sandy SILT Brown, stiff to very stiff, moist					
5		Silty (fine to coarse grained) SAND Brown, very dense, moist					
		GWT not encountered					
		Trench completed at depth of 7'					
10							
15							
20							
25							
30							
35							

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Christiansen & Company 17802-14	Log of Trench T-9
Boring Location: Menifee	
Date of Drilling: 11/22/14	Groundwater Depth: None Encountered
Drilling Method: Backhoe	
Hammer Weight:	Drop:
Surface Elevation: Not Measured	

Depth (feet)	Lith-ology	Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: % Passing 200 Sieve
0		FILL Sandy SILT Brown, soft, dry	■		3.8	107.7	
		NATURAL Sandy SILT Brown, stiff to very stiff, damp	▽				
5		Silty (fine to coarse grained) SAND Brown, very dense, damp	■		4.2	115.2	
		Clayey (fine to coarse grained) SAND Red-brown, dense, moist					
10			■		11.9	114.7	
		Sandy SILT Brown, stiff, moist					
15		Trench completed at depth of 15'	■		11.1	102.1	
20							
25							
30							
35							

GWT not encountered

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECT\17802-14 SI.log Date: 12/9/2014

NorCal Engineering

Christiansen & Company 17802-14	Log of Trench T-10
Boring Location: Menifee	
Date of Drilling: 11/22/14	Groundwater Depth: None Encountered
Drilling Method: Backhoe	
Hammer Weight:	Drop:
Surface Elevation: Not Measured	

Depth (feet)	Lith-ology	Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: % Passing 200 Sieve
0		FILL Sandy SILT Brown, soft, dry	■		3.7	105.8	
		NATURAL Sandy SILT Brown, stiff to very stiff, moist; with trace of clay					
5		Silty (fine to coarse grained) SAND Brown, very dense, moist	■		2.6	115.3	
10		Trench completed at depth of 10'					
15							
20							
25							
30							
35							

GWT not encountered

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECT\17802-14 SI.log Date: 12/9/2014

Christiansen & Company 17802-14	Log of Trench T-11

Boring Location: Menifee	
Date of Drilling: 11/22/14	Groundwater Depth: None Encountered
Drilling Method: Backhoe	
Hammer Weight:	Drop:
Surface Elevation: Not Measured	

Depth (feet)	Lith-ology	Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: % Passing 200 Sieve
0		FILL Sandy SILT Brown, soft, dry					
		NATURAL Sandy SILT Brown, stiff to very stiff, moist; with trace of clay					
5			■		11.9	113.7	
10		Trench completed at depth of 10'	■		11.3	115.2	
15							
20							
25							
30							
35							

GWT not encountered

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECT\17802-14 SI.log Date: 12/9/2014

NorCal Engineering

Appendix B

TABLE I
MAXIMUM DENSITY TESTS

Sample	Classification	Optimum Moisture	Maximum Dry Density (lbs./cu.ft.)
T-4 @ 2'	Sandy SILT	12.5	115.0
T-5 @ 3'	Silty SAND	9.5	128.0
T-9 @ 2'	Sandy SILT	11.5	125.0

TABLE II
EXPANSION INDEX TESTS

Soil Type	Classification	Expansion Index
T-4 @ 2'	Sandy SILT	17
T-9 @ 2'	Sandy SILT	10

TABLE III
ATTERBERG LIMITS

Sample	Liquid Limit	Plastic Limit	Plasticity Index
B-1 @ 5'	24	17	7
B-1 @ 10'	26	18	8

TABLE IV
CORROSION TESTS

Sample	pH	Electrical Resistivity (ohm-cm)	Sulfate (%)	Chloride (ppm)
T-4 @ 2'	7.4	1,008	0.020	289
T-5 @ 3'	7.3	1,355	0.011	247
T-9 @ 2'	7.4	1,427	0.009	258

ND denotes not detected
% by weight
ppm – mg/kg

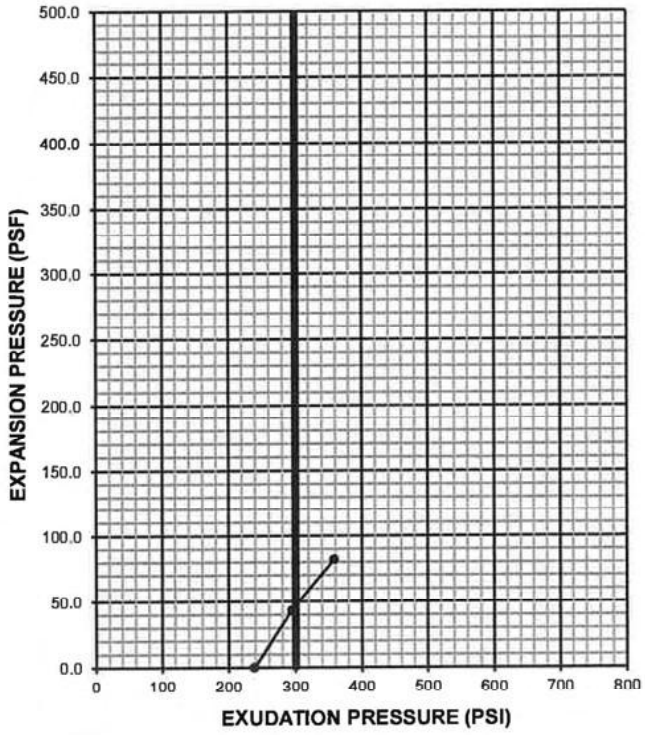
GMU GEOTECHNICAL, INC.

R-VALUE TEST RESULTS

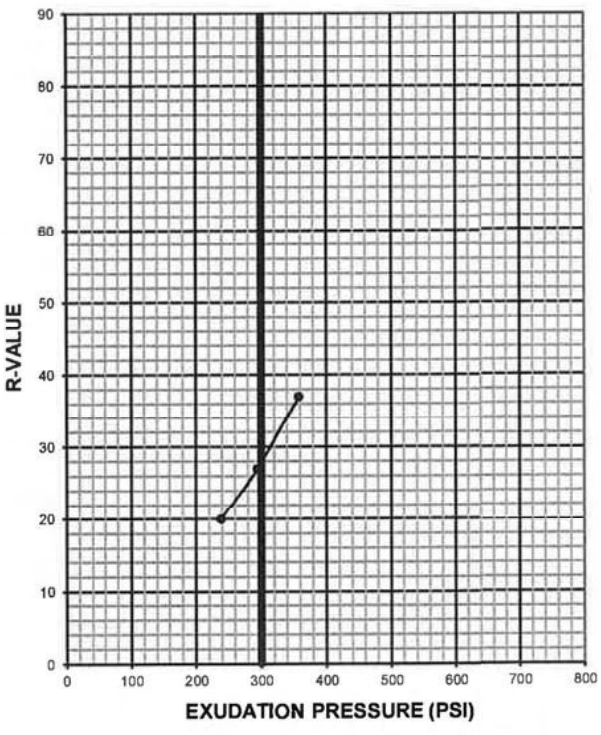
PROJECT NAME:	Christiansen and Company	PROJECT NUMBER:	L-141104
SAMPLE LOCATION:	SWC of Menifee Rd and Heritage Lakes Drive, Menifee	SAMPLE NUMBER:	B-1 @ 1.0'
SAMPLE DESCRIPTION:	Silty Sand with some Clay (SM)	TECHNICIAN:	EE/MF
		DATE TESTED	12/3/2014

TEST SPECIMEN	a	b	c
MOISTURE AT COMPACTION %	13.3	12.7	12.2
WEIGHT OF SAMPLE, grams	1103	1112	1114
HEIGHT OF SAMPLE, Inches	2.48	2.50	2.49
DRY DENSITY, pcf	118.9	119.6	120.8
COMPACTOR AIR PRESSURE, psi	180	200	250
EXUDATION PRESSURE, psi	238	294	358
EXPANSION, Inches x 10exp-4	0	10	19
STABILITY Ph 2,000 lbs (160 psi)	110	97	78
TURNS DISPLACEMENT	4.51	4.36	4.50
R-VALUE UNCORRECTED	20	27	37
R-VALUE CORRECTED	20	27	37
EXPANSION PRESSURE (psf)	0.0	43.2	82.1

EXPANSION PRESSURE VS. EXUDATION PRESSURE

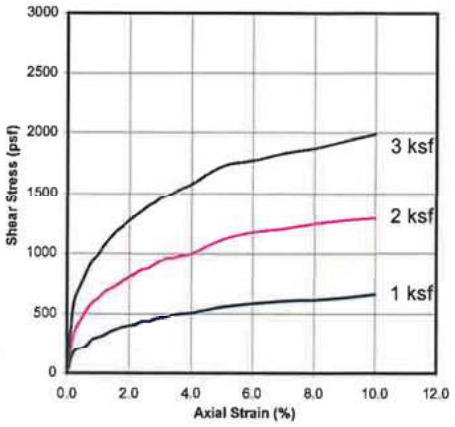


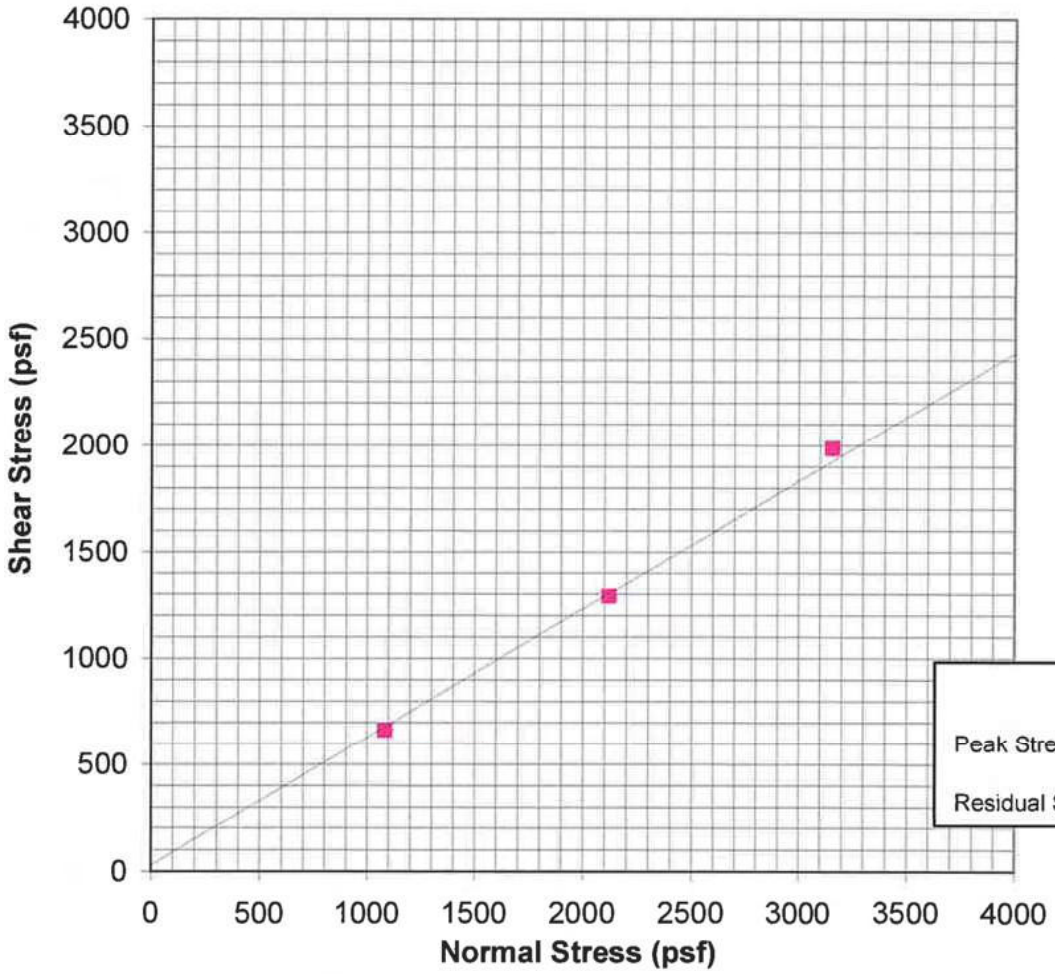
R-VALUE VS. EXUDATION PRESSURE



R-VALUE AT 300 PSI EXUDATION PRESSURE :	**28**
EXP. PRESSURE AT 300 PSI EXUDATION PRESSURE (PSF) :	**50**

Sample No.		T4@2'		
Sample Type:		Undisturbed/Saturated		
Soil Description:		Sandy Silt		
		1	2	3
Normal Stress	(psf)	1085	2120	3156
Peak Stress	(psf)	666	1293	1987
Displacement	(in)	0.250	0.250	0.250
Residual Stress	(psf)	666	1293	1987
Displacement	(in.)	0.250	0.250	0.250
In Situ Dry Density	(pcf)	106.6	106.6	106.6
In Situ Water Content	(%)	3.2	3.2	3.2
Saturated Water Content	(%)	21.3	21.3	21.3
Strain Rate	(in/min)	0.020	0.020	0.020





Peak Stress
Residual Stress
Peak C@0 to 4K psf
Residual C@0 to 4K psf

	Ø (Deg)	C (psf)
Peak Stress	31	30
Residual Stress	31	30

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SOILS AND GEOTECHNICAL CONSULTANTS

Christiansen & Company

PROJECT NUMBER: 17802-14 DATE: 12/9/2014

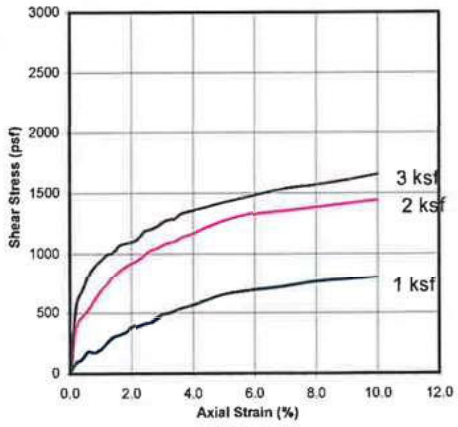
DIRECT SHEAR TEST

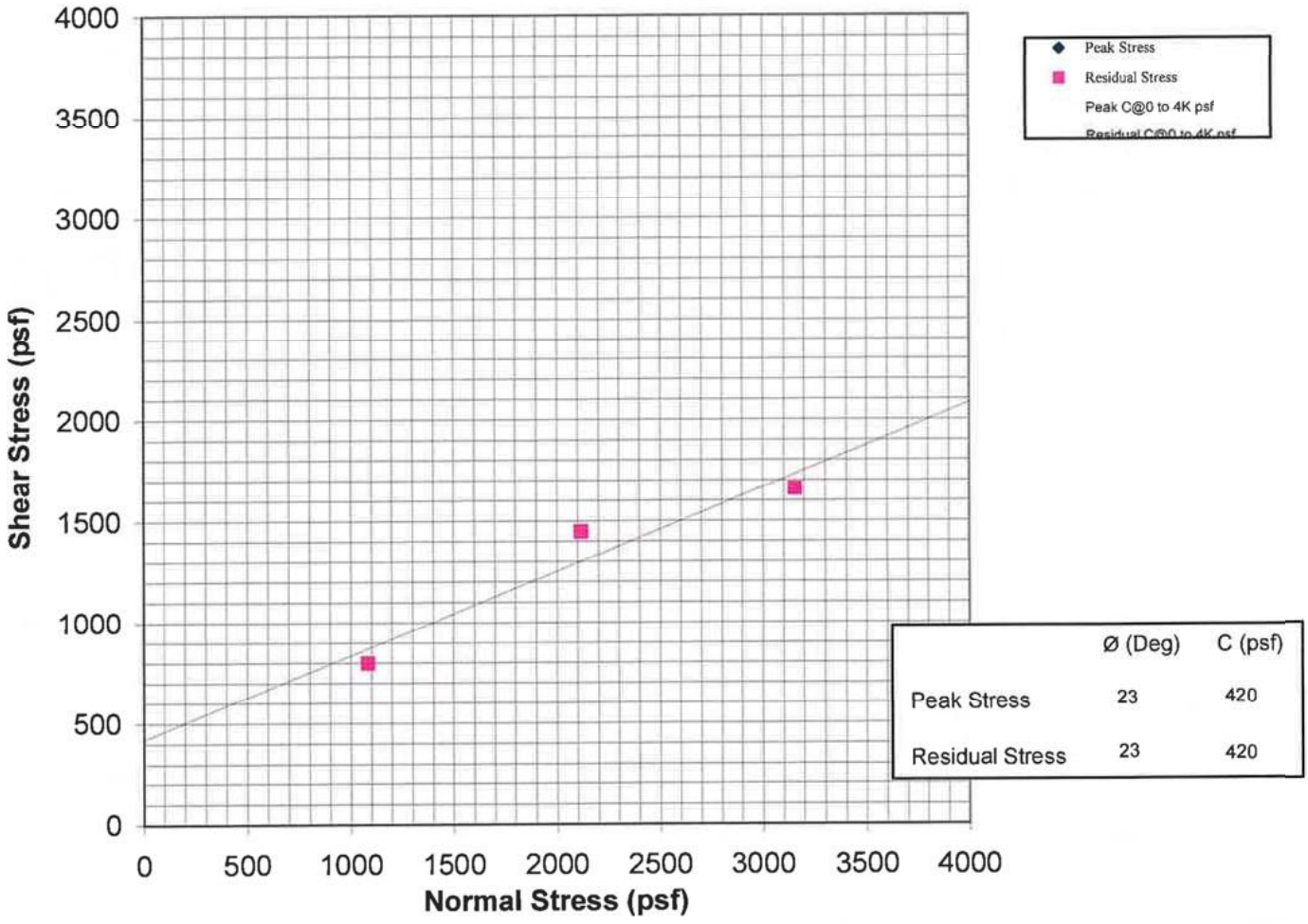
ASTM D3080

Plate A

Sample No.		T7@2'
Sample Type:		Undisturbed/Saturated
Soil Description:		Sandy to Clayey Silt

		1	2	3
Normal Stress	(psf)	1085	2120	3156
Peak Stress	(psf)	801	1447	1659
Displacement	(in.)	0.250	0.250	0.250
Residual Stress	(psf)	801	1447	1659
Displacement	(in.)	0.250	0.250	0.250
In Situ Dry Density	(pcf)	107.6	107.6	107.6
In Situ Water Content	(%)	13.9	13.9	13.9
Saturated Water Content	(%)	20.6	20.6	20.6
Strain Rate	(in/min)	0.020	0.020	0.020





	Ø (Deg)	C (psf)
Peak Stress	23	420
Residual Stress	23	420

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PROJECT NUMBER: 17802-14 DATE: 12/9/2014

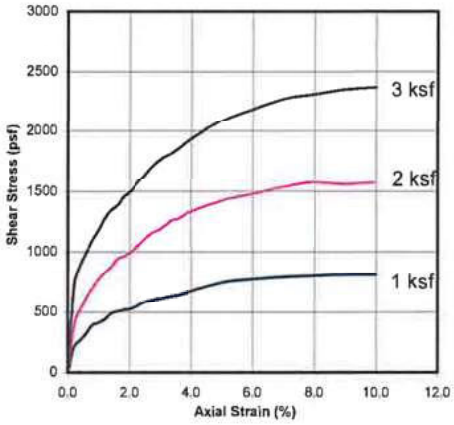
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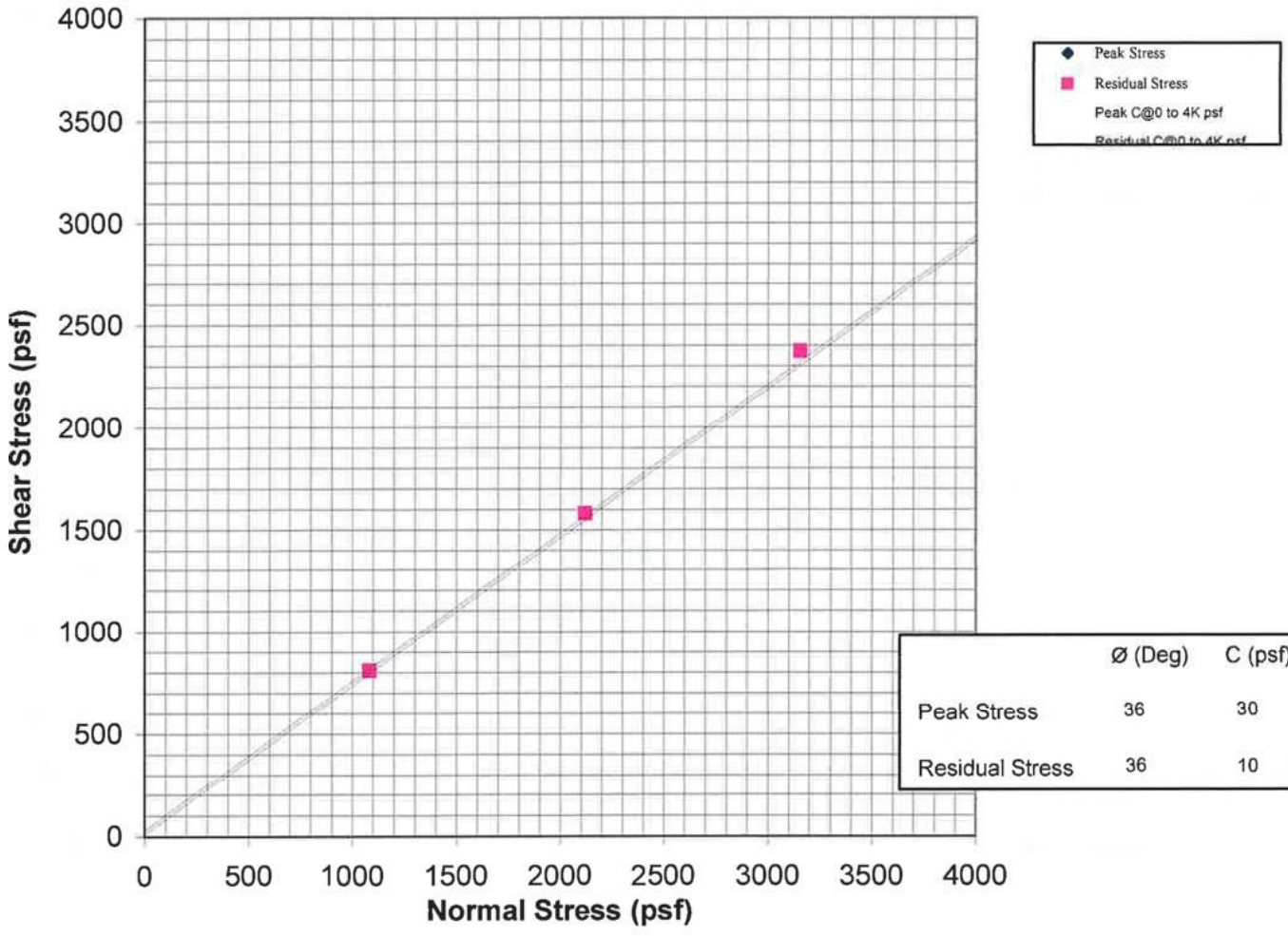
ASTM D3080

Plate B

Sample No.	T10@2'	
Sample Type:	Undisturbed/Saturated	
Soil Description:	Silty Sand w/ Some Clay	

		1	2	3
Normal Stress	(psf)	1085	2120	3156
Peak Stress	(psf)	810	1582	2373
Displacement	(in.)	0.225	0.200	0.250
Residual Stress	(psf)	810	1582	2373
Displacement	(in.)	0.250	0.250	0.250
In Situ Dry Density	(pcf)	105.8	105.8	105.8
In Situ Water Content	(%)	3.7	3.7	3.7
Saturated Water Content	(%)	28.0	28.0	28.0
Strain Rate	(in/min)	0.020	0.020	0.020





	Ø (Deg)	C (psf)
Peak Stress	36	30
Residual Stress	36	10

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Christiansen & Company

PROJECT NUMBER: 17802-14 DATE: 12/9/2014

DIRECT SHEAR TEST

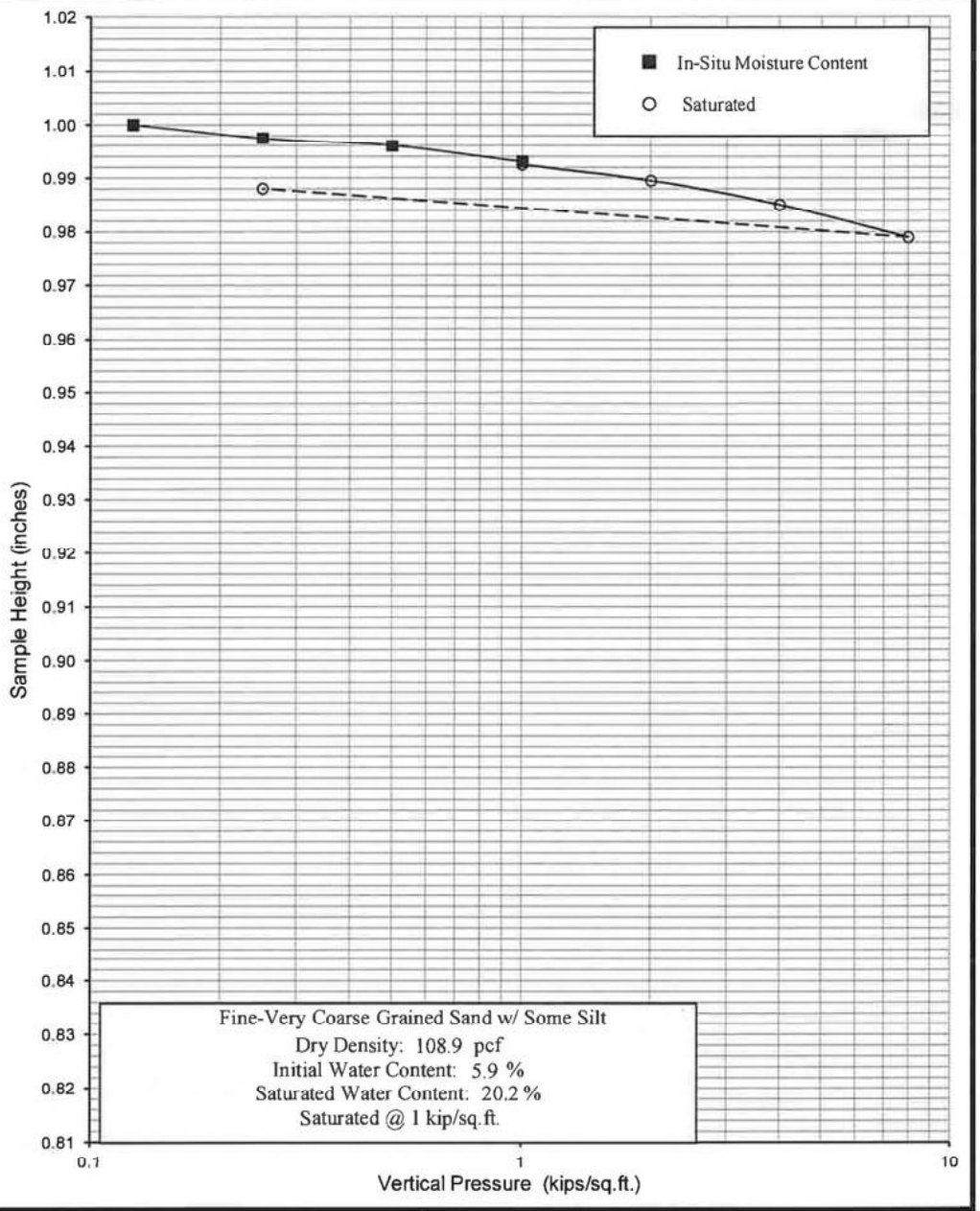
ASTM D3080

Plate C

Vertical Pressure (kips/sq.ft.)	Sample Height (inches)	Consolidation (percent)	
0.125	1.0000	0.0	
0.25	0.9975	0.2	
0.5	0.9960	0.4	
1	0.9930	0.7	
1	0.9925	0.8	
2	0.9895	1.1	
4	0.9850	1.5	
8	0.9790	2.1	
0.25	0.9880	1.2	Saturated

Date Tested:	**12/4/2014**
Sample:	**T5**
Depth:	**5'**

Sample No.	T5	Depth	5'	Date	12/9/2014



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Christiansen & Company

PROJECT NUMBER: 17802-14 DATE: 12/9/2014

CONSOLIDATION TEST

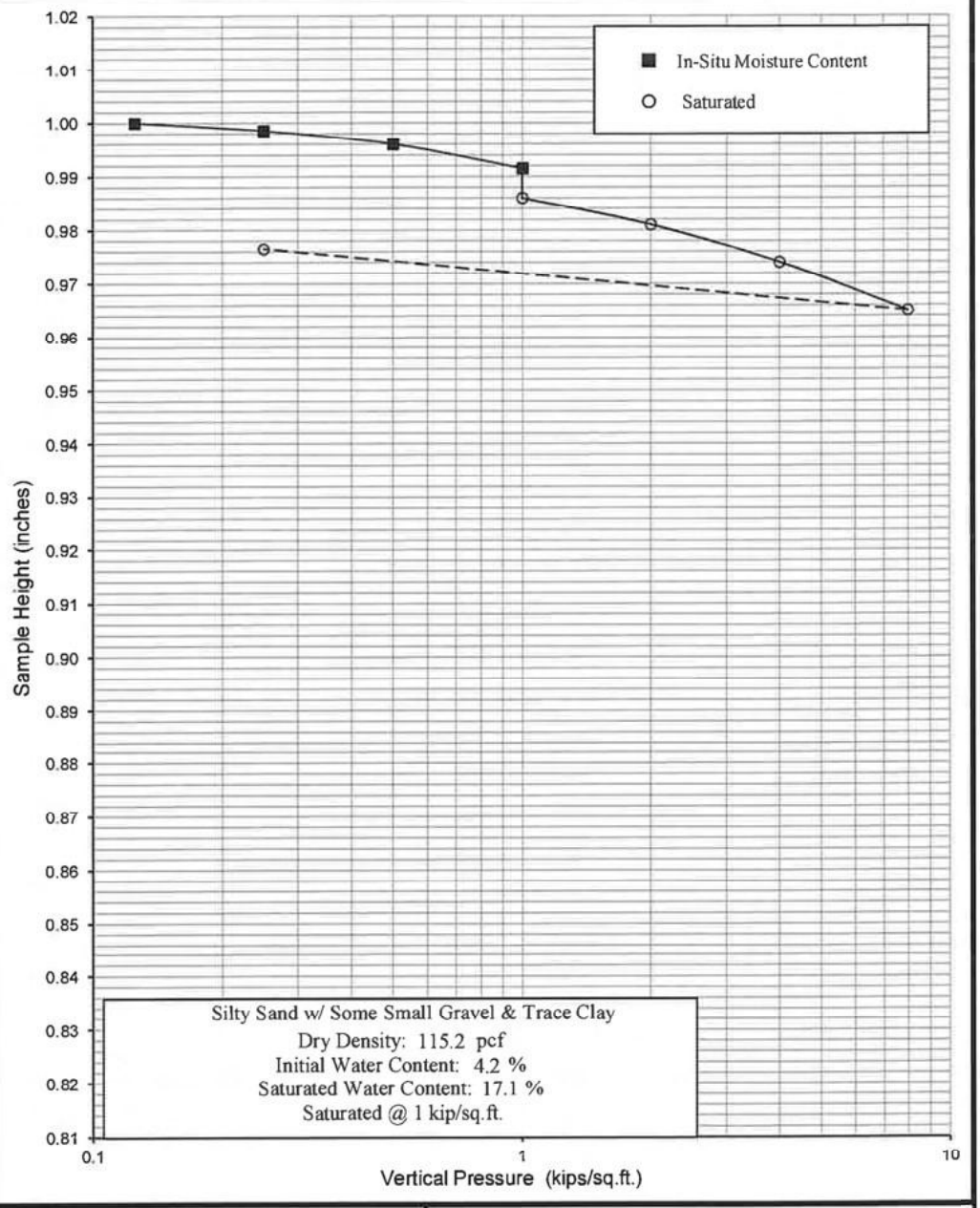
ASTM D2435

Plate D

Vertical Pressure (kips/sq.ft.)	Sample Height (inches)	Consolidation (percent)	
0.125	1.0000	0.0	
0.25	0.9985	0.2	
0.5	0.9960	0.4	
1	0.9915	0.8	
1	0.9860	1.4	
2	0.9810	1.9	
4	0.9740	2.6	
8	0.9650	3.5	Saturated
0.25	0.9765	2.4	

Date Tested:	12/4/2014
Sample:	T9
Depth:	5'

Sample No.	T9	Depth	5'	Date	12/9/2014



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SOILS AND GEOTECHNICAL CONSULTANTS

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PROJECT NUMBER: 17802-14 DATE: 12/9/2014

CONSOLIDATION TEST

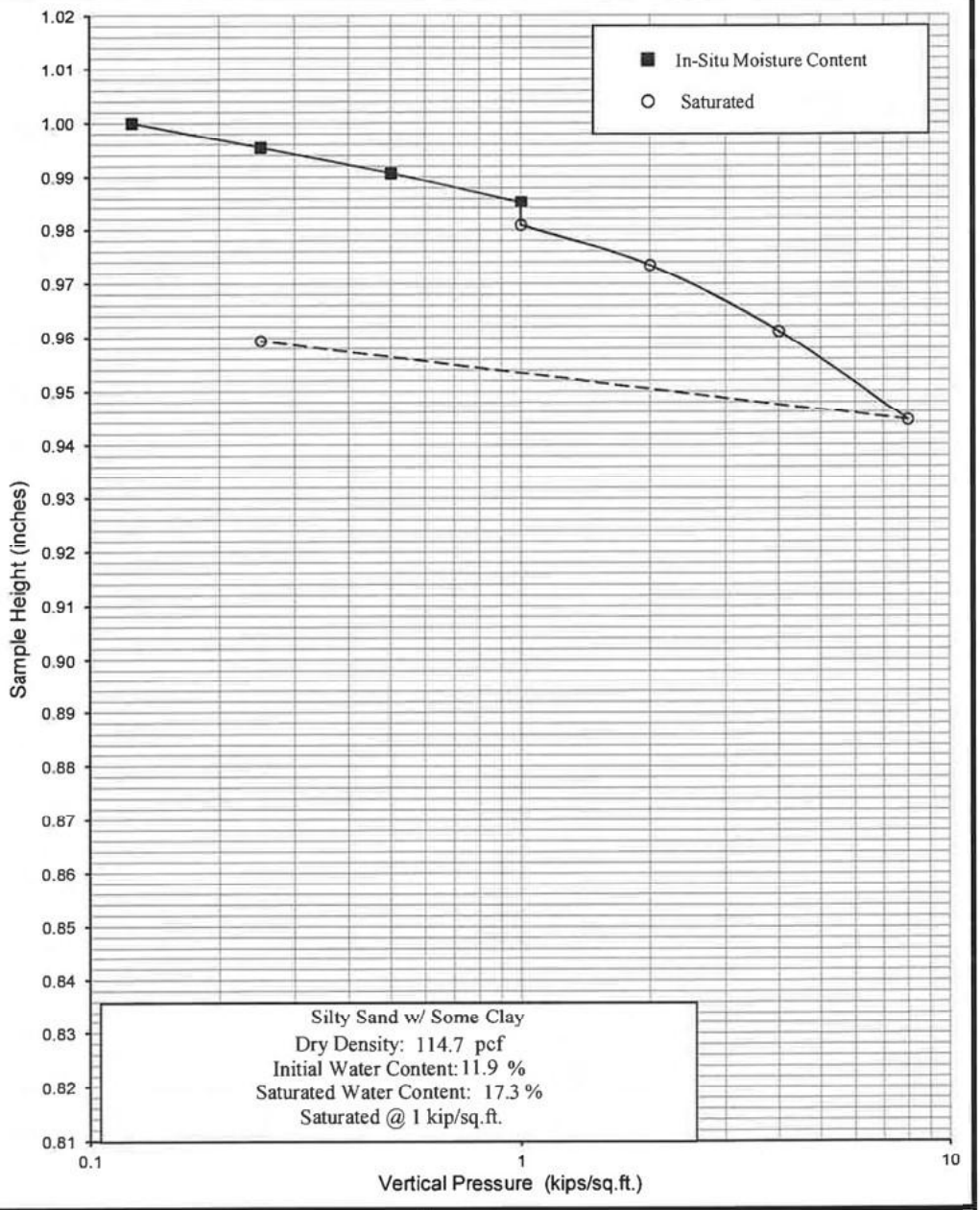
ASTM D2435

Plate E

Vertical Pressure (kips/sq.ft.)	Sample Height (inches)	Consolidation (percent)	Sample No.	T9	Depth	10'	Date	12/9/2014
0.125	1.0000	0.0						
0.25	0.9954	0.5						
0.5	0.9907	0.9						
1	0.9853	1.5						
1	0.9809	1.9						
2	0.9734	2.7						
4	0.9611	3.9						
8	0.9445	5.6						
0.25	0.9594	4.1						

Saturated

Date Tested: 12/4/2014
Sample: T9
Depth: 10'



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PROJECT NUMBER: 17802-14 DATE: 12/9/2014

CONSOLIDATION TEST

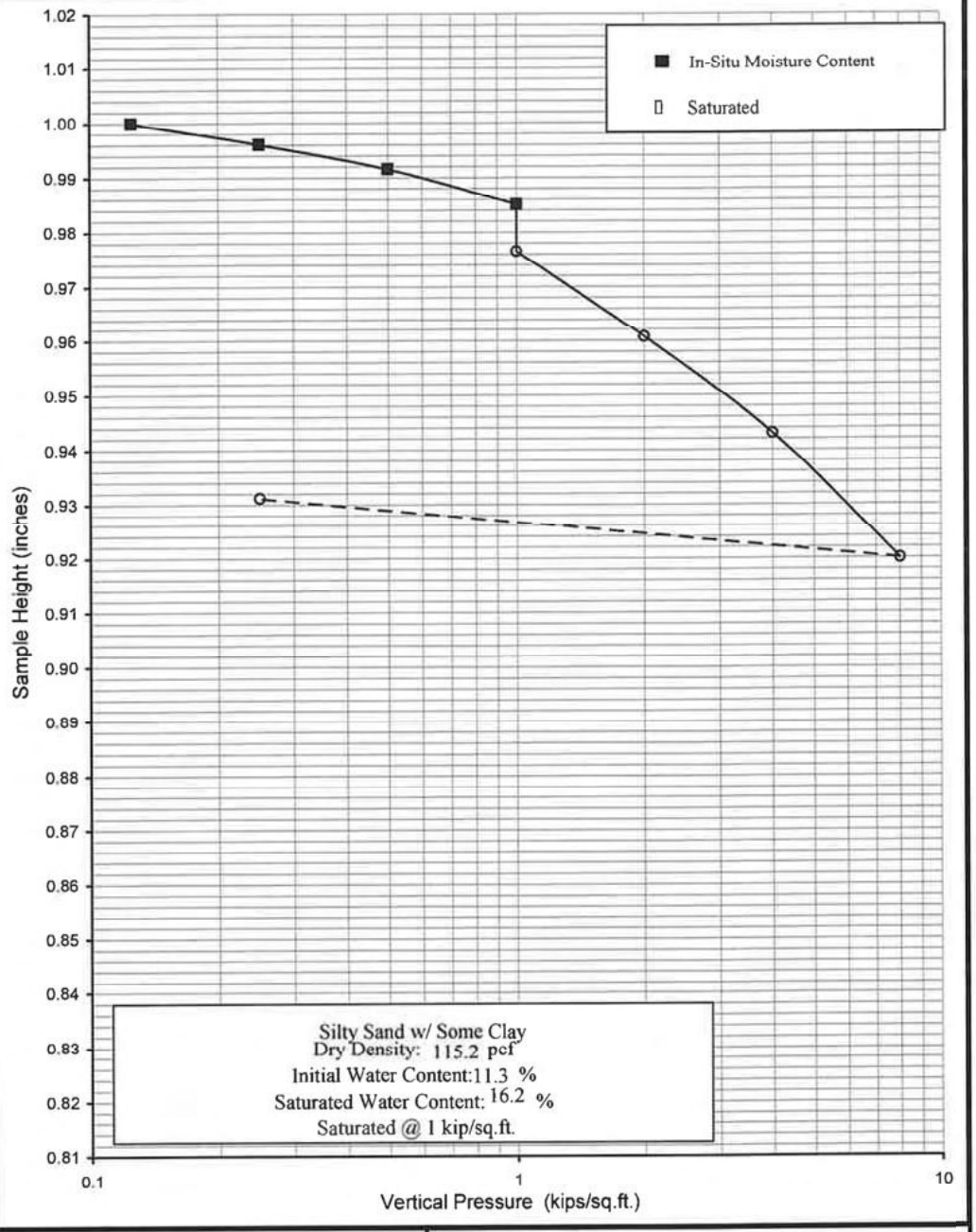
ASTM D2435

Plate F

Vertical Pressure (kips/sq.ft.)	Sample Height (inches)	Consolidation (percent)	
0.125	1.0000	0.0	
0.25	0.9961	0.4	
0.5	0.9916	0.8	
1	0.9851	1.5	
1	0.9765	2.4	
2	0.9607	3.9	
4	0.9430	5.7	
8	0.9200	8.0	Saturated
0.25	0.9312	6.9	

Sample No.	T11	Depth	10'	Date	12/9/2014

Date Tested: 12/5/2014
Sample: T11
Depth: 10'



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SOILS AND GEOTECHNICAL CONSULTANTS

Christiansen & Company

PROJECT NUMBER: 17802-14 DATE: 12/9/2014

CONSOLIDATION TEST

ASTM D2435

Plate G

NorCal Engineering

Soils and Geotechnical Consultants
10641 Humbolt Street Los Alamitos, CA 90720
(562) 799-9469 Fax (562) 799-9459

December 3, 2014 Project Number 17802-14

Christiansen & Company
3649 Ninth Street
Riverside, California 92501

Attn.: Mr. Keith Christiansen

RE: **Soil Infiltration Study** - Proposed "The Village at Junipero Apartment Development" - Located at the Southwest Corner of Menifee Road and Heritage Lakes Drive, in the City of Menifee, California

Dear Mr. Christiansen:

Pursuant to your request, this firm has performed a Soils Infiltration Study for the above referenced project in accordance with your approval of proposal dated August 18, 2014. The purpose of this study is to evaluate the feasibility of an on-site drainage disposal system for the proposed residential development. The scope of work included the following: 1) site reconnaissance; 2) subsurface geotechnical exploration; 3) double ring infiltration testing; 4) engineering analysis of field and laboratory data; and 5) preparation of a report.

It is proposed to construct a multi-unit apartment complex as shown on the attached conceptual site plan. The project will consist of twenty-four (24) buildings including a new clubhouse and swimming pool on the 19.25-acre property. The two and/or three story buildings will be supported by a conventional slab-on-grade foundation system with perimeter-spread footings and isolated interior footings. It is assumed that the proposed grading for the development will include minor cut and fill procedures. The proposed on-site drainage disposal system will consist of a large detention/infiltration basin on the order of 5 to 8 feet in depth.

Site Description

The subject property is situated at the southwest corner of Menifee Road and Heritage Lakes Drive, in the City of Menifee. The generally rectangular shaped parcel is elongated in an east to west direction and topography of the relatively level parcel descending gradually from south to north on the order of a few feet. The site is an undeveloped lot currently covered with a low to moderate growth of vegetation consisting of natural grasses and weeds.

Field Exploration

The testing was conducted on November 22, 2014 and consisted of using the double ring infiltrometer at three (3) locations to determine the infiltration rate of the proposed drainage disposal system. The location of these tests is shown on the attached Site Plan. These test locations were excavated by a backhoe at a depth of 5 to 7½ feet below ground surface (bgs). No caving occurred to the depth of these test excavations and no groundwater was encountered.

Detailed description of the subsurface soils is shown on the attached test excavations logs in Appendix B. In general, the site was found to be underlain by a fill and native soil classified as a sandy silt which was noted to be stiff to very stiff and damp and a a brown, silty to clayey sand which were noted to be very dense and damp.

Infiltration Test Procedure and Results

The infiltration test consisted of the double ring infiltration test per ASTM Method D 3385. "The double ring infiltrometer method consists of driving two open cylinders, one inside the other, into the ground, partially filling the ring with water or other liquid, and then maintaining the liquid at a constant level. The volume of liquid added to the inner ring, to maintain the liquid level constant is the measure of the volume of liquid that infiltrates the soil.

The volume infiltrated during timed intervals is converted to an incremental infiltration velocity, usually expressed in centimeters per hour or inches per hour and plotted verses elapsed time. The maximum-steady state or average incremental infiltration velocity, depending on the purpose/application of the test is equivalent to the infiltration rate".

Along the bottom of the infiltration test pits, dual infiltration rings were inserted 7 cm vertically into the soil by an impact-absorbing hammer. Guelph tubes, also referred to as bubblers were installed to maintain constant water level in each of the rings. Water levels were maintained at a constant level in both the inner ring and annular space between rings throughout the test, to prevent flow of water from one ring to the other.

The volume of liquid used during each measured time interval was converted into an incremental infiltration velocity of both the inner ring in the annular space using the following equations:

For the inner ring calculated as follows:

$$Vir=\Delta Vir/(Air\Delta t)$$

where:

Vir = inner ring incremental infiltration velocity, cm/hr

ΔVir = volume of water used during time interval to maintain constant head in the inner ring, cm^3

Air = internal area of the inner ting, cm^2

Δt = time interval, hr

The last reading was used for design purposes in each of the test pits. The testing data sheets are attached in Appendix B and summarized in the table below. These excavations were immediately backfilled with the excavated soils and compacted. The double ring infiltration results are shown in Appendix B.

Test No.	Depth (feet bgs)	Classification	Infiltration Rate (cm/hr)	(in/hr)
1	7.5'	Sandy SILT	0.26	0.10
2	5'	Sandy SILT	0.10	0.04
3	7.5'	Sandy SILT	0.40	0.16

Groundwater Information

Our firm had recently performed a "Geotechnical Engineering Investigation" dated December 8, 2014 for the subject property and excavated an additional eleven (11) exploratory trenches to depths ranging between 5 and 15 feet and one (1) boring to a depth of 50 feet. Groundwater was encountered at a depth of 36 feet below ground surface. The exposed sidewalls of our borings did not reveal any evidence (mottling, etc.) that groundwater had been near the surface.

Discussion of Results

Based upon the results of our testing, the subsurface soils encountered in the proposed on-site drainage disposal system shall utilize a conservative design rate of 0.1 in/hr. All systems must meet the latest city and/or county specifications and California Regional Water Quality Control Board (CRWQCB) requirements.

It is our opinion that the site is suitable for stormwater infiltration without increasing the potential of settlement of proposed and existing structures located either on or adjacent to the subject site. In addition, the potential for hydro-consolidation and the susceptibility for any ground settlements are considered very low. Foundations shall be set back a minimum distance of 10 feet from the drainage disposal system and the bottom of footing shall be a minimum of 10 feet from the expected zone of saturation. The boundary of the zone of saturation may be assumed to project downward from the top of the permeable portion of the disposal system at an inclination of 1 to 1 or flatter, as determined by the soils engineer.

Closure

The recommendations and conclusions contained in this report are based upon the soil conditions uncovered in our test excavations. No warranty of the soil condition between our excavations is implied. NorCal Engineering should be notified for possible further recommendations if unexpected to unfavorable conditions are encountered during construction phase.

This firm should have the opportunity to review the final plans to verify that all our recommendations are incorporated. This report and all conclusions are subject to the review of the controlling authorities for the project. Our representative should be present during the grading operations and construction phase to certify that such recommendations are complied within the field.

This geotechnical investigation has been conducted in a manner consistent with the level of care and skill exercised by members of our profession currently practicing under similar conditions in the Southern California area. All work was performed under the supervision of the Geotechnical Engineer. No other warranty, expressed or implied is made. No other warranty, expressed or implied is made.

We appreciate this opportunity to be of service to you. If you have any further questions, please do not hesitate to contact the undersigned.

Respectfully submitted,
NORCAL ENGINEERING



Keith D. Tucker
Project Engineer
R.G.E. 841

Scott D. Spensiero
Project Manager

List of Appendices

(in order of appearance)

Appendix A

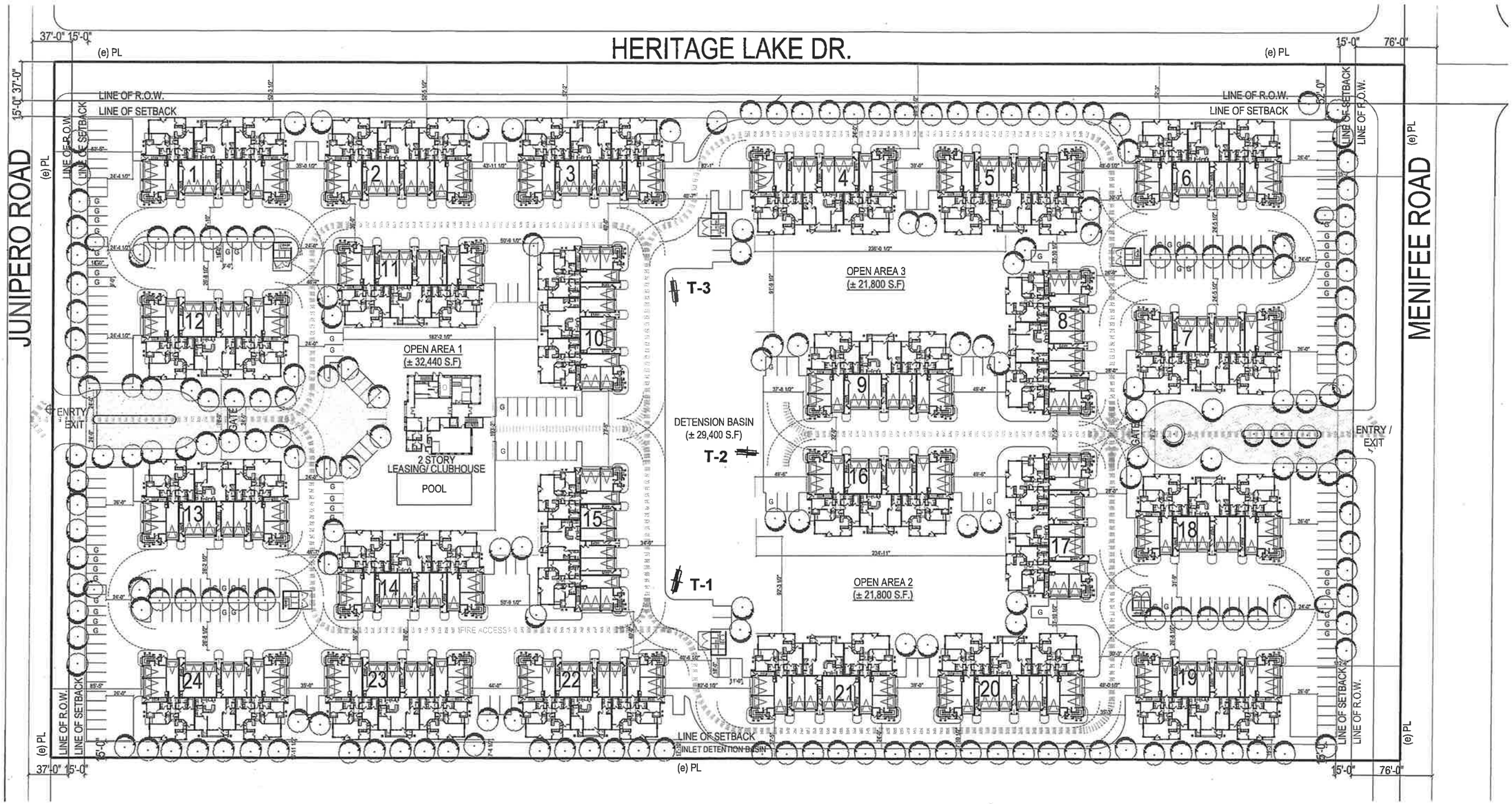
Site Plan

Appendix B

Log of Trenches T-1 to T-3

Field Test Data

Appendix A



N

0' 50' 100' 200'

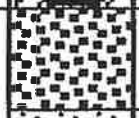
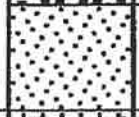
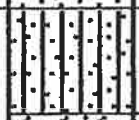
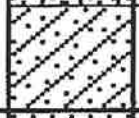
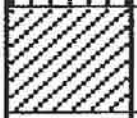
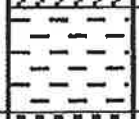
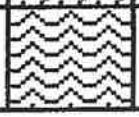
1 INCH = 100 FEET

NorCal Engineering
SOILS AND GEOTECHNICAL CONSULTANTS

PROJECT 17802-14 | DATE DECEMBER 2014

SITE PLAN

Appendix B

MAJOR DIVISION			GRAPHIC SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL, SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	SAND AND SANDY SOILS	CLEAN SAND (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	SANDS WITH FINE (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND-SILT MIXTURES
				SC	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

UNIFIED SOIL CLASSIFICATION SYSTEM

KEY:

- ■ Indicates 2.5-inch Inside Diameter. Ring Sample.
- ☒ Indicates 2-inch OD Split Spoon Sample (SPT).
- ⧅ Indicates Shelby Tube Sample.
- ◫ Indicates No Recovery.
- ◧ Indicates SPT with 140# Hammer 30 in. Drop.
- ☑ Indicates Bulk Sample.
- ◩ Indicates Small Bag Sample.
- ◨ Indicates Non-Standard
- ⧓ Indicates Core Run.

COMPONENT PROPORTIONS

DESCRIPTIVE TERMS	RANGE OF PROPORTION
Trace	1 - 5%
Few	5 - 10%
Little	10 - 20%
Some	20 - 35%
And	35 - 50%

COMPONENT DEFINITIONS

COMPONENT	SIZE RANGE
Boulders	Larger than 12 in
Cobbles	3 in to 12 in
Gravel	3 in to No 4 (4.5mm)
Coarse gravel	3 in to 3/4 in
Fine gravel	3/4 in to No 4 (4.5mm)
Sand	No. 4 (4.5mm) to No. 200 (0.074mm)
Coarse sand	No. 4 (4.5 mm) to No. 10 (2.0 mm)
Medium sand	No. 10 (2.0 mm) to No. 40 (0.42 mm)
Fine sand	No. 40 (0.42 mm) to No. 200 (0.074 mm)
Silt and Clay	Smaller than No. 200 (0.074 mm)

MOISTURE CONTENT

DRY	Absence of moisture, dusty, dry to the touch.
DAMP	Some perceptible moisture; below optimum
MOIST	No visible water; near optimum moisture content
WET	Visible free water, usually soil is below water table.

RELATIVE DENSITY OR CONSISTENCY VERSUS SPT N -VALUE

COHESIONLESS SOILS		COHESIVE SOILS		
Density	N (blows/ft)	Consistency	N (blows/ft)	Approximate Undrained Shear Strength (psf)
Very Loose	0 to 4	Very Soft	0 to 2	< 250
Loose	4 to 10	Soft	2 to 4	250 - 500
Medium Dense	10 to 30	Medium Stiff	4 to 8	500 - 1000
Dense	30 to 50	Stiff	8 to 15	1000 - 2000
Very Dense	over 50	Very Stiff	15 to 30	2000 - 4000
		Hard	over 30	> 4000

Christianson & Company 17802-14	Log of Trench T-1

Boring Location: Menifee	
Date of Drilling: 11/22/14	Groundwater Depth: None Encountered
Drilling Method: Backhoe	
Hammer Weight:	Drop:
Surface Elevation: Not Measured	

Depth (feet)	Lith-ology	Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: % Passing #200 Sieve
0		FILL Sandy SILT Brown, soft, damp					
		NATURAL Sandy SILT Brown, stiff, damp					
5		Silty (fine to coarse grained) SAND Brown, very dense, damp; with occasional gravel and slightly clay					
		Sandy SILT Brown, very stiff, moist; slight clay content					
		Boring completed at depth of 7.5'					
10							
15							
20							
25							
30							
35							

GWT not encountered

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECT\17802-14.log Date: 12/4/2014

NorCal Engineering

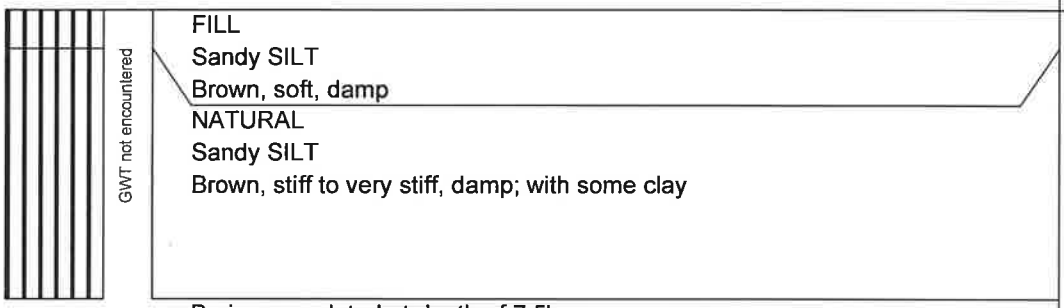
Christianson & Company 17802-14	Log of Trench T-2
Boring Location: Menifee	
Date of Drilling: 11/22/14	Groundwater Depth: None Encountered
Drilling Method: Backhoe	
Hammer Weight:	Drop:
Surface Elevation: Not Measured	

Depth (feet)	Lith-ology	Material Description	Samples		Laboratory		
			Type	Blow Counts	Moisture	Dry Density	% Passing 200 Sieve
0		FILL Sandy SILT Brown, soft, damp					
		NATURAL Sandy SILT Brown, stiff, damp; slightly clayey					
5		Boring completed at depth of 5'					
10							
15							
20							
25							
30							
35							

GWT not encountered

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECT\17802-14.log Date: 12/4/2014

Christianson & Company 17802-14	Log of Trench T-3
Boring Location: Menifee	
Date of Drilling: 11/22/14	Groundwater Depth: None Encountered
Drilling Method: Backhoe	
Hammer Weight:	Drop:
Surface Elevation: Not Measured	



Depth (feet)	Lith-ology	Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: % Passing 200 Sieve
0		FILL Sandy SILT Brown, soft, damp					
		NATURAL Sandy SILT Brown, stiff to very stiff, damp; with some clay					
5							
		Boring completed at depth of 7.5'					
10							
15							
20							
25							
30							
35							

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECT\17802-14.log Date: 12/4/2014

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SOILS AND GEOTECHNICAL CONSULTANTS
10641 HUMBOLT STREET LOS ALAMITOS, CA 90720
(562)799-9469 FAX (562)799-9459

Project: Christianson & Company
Project No.: 17802-14
Date: 11/22/14

Test No.: 1
Depth: 7.5'
Tested By: J.S.

	Time (hr/min)	Change Time (min)	Cumulative Time (min)	Inner Ring Reading (cm)	Inner Ring Change (cm)	Inner Ring Flow (cc)	Outer Ring Reading (cm)	Outer Ring Change (cm)	Outer Ring Flow (cc)	Inner Ring Inf Rate (cm/hr)	Outer Ring Inf Rate (cm/hr)	Inner Ring Inf Rate (ft/hr)
1	7:56			43.7			108.3					
	8:06	10	10	44.5	0.8		108.3	0.0				
2	8:06			44.5			108.3					
	8:16	10	20	45.3	0.8		108.3	0.0				
3	8:16			45.3			108.3					
	8:26	10	30	45.7	0.4		108.7	0.4				
4	8:26			45.7			108.7					
	8:36	10	40	45.7	0.0		108.7	0.0				
5	8:36			45.7			108.7					
	8:46	10	50	45.9	0.2		108.9	0.2				
6	8:46			45.9			108.9					
	8:56	10	60	46.0	0.1		108.9	0.0		0.6	0.0	
7	8:56			46.0			108.9					
	9:06	10	70	46.1	0.1		108.9	0.0		0.6	0.0	
8	9:06			46.1			108.9					
	9:16	10	80	46.1	0.0		109.0	0.1		0.0	0.6	
9	9:16			46.1			109.0					
	9:26	10	90	46.2	0.1		109.0	0.0		0.6	0.0	
10	9:26			46.2			109.0					
	9:36	10	100	46.2	0.0		109.1	0.1		0.0	0.6	
11	9:36			46.2			109.1					
	9:46	10	110	46.2	0.0		109.1	0.0		0.0	0.0	
12	9:46			46.2			109.1					
	9:56	10	120	46.2	0.0		109.1	0.0		0.0	0.0	

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(562)799-9469 FAX (562)799-9459

Project: Christianson & Company
Project No.: 17802-14
Date: 11/22/14

Test No.: 2
Depth: 5'
Tested By: J.S.

	Time (hr/min)	Change Time (min)	Cumulative Time (min)	Inner Ring Reading (cm)	Inner Ring Change (cm)	Inner Ring Flow (cc)	Outer Ring Reading (cm)	Outer Ring Change (cm)	Outer Ring Flow (cc)	Inner Ring Inf Rate (cm/hr)	Outer Ring Inf Rate (cm/hr)	Inner Ring Inf Rate (ft/hr)
1	10:23			43.6			108.9					
	10:33	10	10	44.0	0.4		110.0	1.1				
2	10:33			44.0			110.0					
	10:43	10	20	44.2	0.2		110.3	0.3				
3	10:43			44.2			110.3					
	10:53	10	30	44.2	0.0		110.3	0.0				
4	10:53			44.2			110.3					
	11:03	10	40	44.3	0.1		110.4	0.1				
5	11:03			44.3			110.4					
	11:13	10	50	44.3	0.0		110.4	0.0				
6	11:13			44.3			110.4					
	11:23	10	60	44.3	0.0		110.5	0.1		0.0	0.6	
7	11:23			44.3			110.5					
	11:33	10	70	44.3	0.0		110.6	0.1		0.0	0.6	
8	11:33			44.3			110.6					
	11:43	10	80	44.3	0.0		110.6	0.0		0.0	0.0	
9	11:43			44.3			110.6					
	11:53	10	90	44.3	0.0		110.6	0.0		0.0	0.0	
10	11:53			44.3			110.6					
	12:03	10	100	44.4	0.1		110.6	0.0		0.6	0.0	
11	12:03			44.4			110.6					
	12:13	10	110	44.4	0.0		110.7	0.1		0.0	0.6	
12	12:13			44.4			110.7					
	12:23	10	120	44.4	0.0		110.7	0.0		0.0	0.0	

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SOILS AND GEOTECHNICAL CONSULTANTS
10641 HUMBOLT STREET LOS ALAMITOS, CA 90720
(562)799-9469 FAX (562)799-9459

Project: Christianson & Company
Project No.: 17802-14
Date: 11/22/14

Test No.: 3
Depth: 7.5'
Tested By: J.S.

	Time (hr/min)	Change Time (min)	Cumulative Time (min)	Inner Ring Reading (cm)	Inner Ring Change (cm)	Inner Ring Flow (cc)	Outer Ring Reading (cm)	Outer Ring Change (cm)	Outer Ring Flow (cc)	Inner Ring Inf Rate (cm/hr)	Outer Ring Inf Rate (cm/hr)	Inner Ring Inf Rate (ft/hr)
1	12:43			46.2			109.0					
	12:53	10	10	46.2	0.0		109.2	0.2				
2	12:53			46.2			109.2					
	1:03	10	20	46.2	0		109.3	0.1				
3	1:03			46.2			109.3					
	1:13	10	30	46.3	0.1		109.4	0.1				
4	1:13			46.3			109.4					
	1:23	10	40	46.3	0.0		109.5	0.1				
5	1:23			46.3			109.5					
	1:33	10	50	46.4	0.1		109.6	0.1				
6	1:33			46.4			109.6					
	1:43	10	60	46.5	0.1		109.7	0.1		0.6	0.6	
7	1:43			46.5			109.7					
	1:53	10	70	46.5	0.0		109.8	0.1		0.0	0.6	
8	1:53			46.5			109.8					
	2:03	10	80	46.6	0.1		109.9	0.1		0.6	0.6	
9	2:03			46.6			109.9					
	2:13	10	90	46.7	0.1		110.0	0.1		0.6	0.6	
10	2:13			46.7			110.0					
	2:23	10	100	46.7	0.0		110.0	0.0		0.0	0.0	
11	2:23			46.7			110.0					
	2:33	10	110	46.8	0.1		110.1	0.1		0.6	0.6	
12	2:33			46.8			110.1					
	2:43	10	120	46.9	0.1		110.2	0.1		0.6	0.6	

Appendix 4: Historical Site Conditions

Phase I Environmental Site Assessment or Other Information on Past Site Use

PHASE I AND LIMITED PHASE II ENVIRONMENTAL SITE ASSESSMENT ON THREE PARCELS LOCATED AT E. HERITAGE LAKE DRIVE AND MENIFEE ROAD, MENIFEE, CA

(Parcel Nos. 333-070-018, 019, and 053)

Prepared For:

Zach Shulruff
VP of Investments
29th Street Development

Prepared By:

Lilburn Corporation
1905 Business Center Drive
San Bernardino, California 92408
(909) 890-1818

August 2022

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1.0 INTRODUCTION

This Phase I and Limited Phase II Environmental Site Assessment (ESA) is prepared for the review of three parcels (APN Nos. 333-070-018, 019, and 053) consisting of approximately 17.67 acres, located at East Heritage Lake Drive and Menifee Road in the City of Menifee, California. The ESA examines the existing environmental conditions upon, and in the vicinity of the subject site, and identifies any historical or current land use that may pose a Recognized Environmental Condition (REC)[1] affecting the use or continued use of the subject property. Refer to Figures 1 and 2 for a Regional Location Map and Vicinity Map/Aerial Photograph of the subject property.

The purpose of this Limited Phase I/II ESA is to assess historical uses that may have affected the subject site specifically relating to the presence or likely presence of a REC such as hazardous materials or petroleum products. This report includes any observed potential impacts to the site that may have altered the site's ecology, environment, or functional use. Visual observations and inquiry into public records are documented; no documents related to the placement of water pipelines, gas mains or other infrastructure were reviewed. This Limited Phase I/II ESA includes limited soil testing for the presence of pesticides and biosolids at the request of the client. No other testing of soil, air, water or any other matter was conducted as part of this Phase I ESA.

American Society for Testing and Materials (ASTM) Guidelines*:* This environmental assessment follows the guidelines established by the ASTM Standard Practice Manual for the *Phase I Environmental Site Assessment* process, *ASTM Designation E 1527-05*.

The objective of this ESA is to evaluate the subject site for current and historical sources of environmental concerns, evidence of hazardous substance disposal or releases from or onto the subject site, evidence of environmental threats from adjacent properties, and whether further environmental testing of the site is warranted. This report meets *ASTM Standards for ESA's*. To meet these objectives, Lilburn Corporation performed the following tasks:

- Reviewed available environmental reports.
- Reviewed historic land use records and files.
- Reviewed pertinent regulatory agency documents.
- Reviewed available current and historical aerial photographs of the site and adjacent properties.
- Performed a reconnaissance of adjacent and immediately surrounding properties.
- Performed an on-site reconnaissance of the property and collected limited soil samples.
- Obtained laboratory analysis of soil samples.
- Prepared this report.

Results of this Environmental Site Assessment for the site located in the City of Menifee, County of Riverside, California are presented in the following Sections 2.0 – 7.0.

[1] American Society for Testing and Materials defines a Recognized Environmental Condition as "the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws.



0 0.8
Mile

Source: Lilburn Corp., August, 2022.

LILBURN CORPORATION

REGIONAL VICINITY

Menifee Phase I/II

City of Menifee, California

FIGURE 1



Source: Lilburn Corp., August, 2022.

LILBURN CORPORATION

PROJECT LOCATION

Menifee Phase I/II

City of Menifee, California

FIGURE 2

2.0 SITE LOCATION

The subject site herein referred to as “site, subject site” or "property" is being evaluated at the request of 29th Street Capital. The property consists of three parcels totaling approximately 17.67 acres, located at the southwest corner of E. Heritage Lake Drive and Menifee Road in the City of Menifee, California. In 2014, a report was completed for the subject property and entitled *Phase I and Limited Phase II Environmental Site Assessment on Three Parcels Located Northeast of the Intersection of Junipero Road and McCall Boulevard, Menifee, CA.* That report concluded that based on the field reconnaissance of the site, a Phase I and limited Phase II site assessment was sufficient to evaluate the property in question and additional site investigations were not recommended. This 2022 report has been prepared to evaluate existing and historic site conditions.

The geographical location of the site is as follows:

COORDINATES

Latitude (North):	33.7240790 - 33° 43’ 26.68’’
Longitude (West):	117.1562410 - 117° 9’ 22.46’’
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	485524.7
UTM Y (Meters):	3731380.5
Elevation:	Approximately 1461 ft. above sea level
Assessor’s Parcel Numbers:	0333-070-018, 019, and 053

The subject site boundaries are within the U.S. Geological Survey (USGS) Topographic Map: Romoland 7.5-minute series, Section 23, T5S, R3W, San Bernardino Base and Meridian.

2.1 DESCRIPTION OF SURROUNDING AREA

The property is predominately surrounded by development. Land uses include Menifee Road, Junipero Road, E. Heritage Lake Drive, residential, institutional (elementary school), and vacant properties. East Heritage Lake Drive and single-family residential uses are located to the north, Menifee Road and single-family residential uses are on the east, Junipero Road and Boulder Ridge Elementary School are to the west, and the property to the south is currently being developed (end use could not be determined). The subject site contains no buildings or structures, but appears to be an active construction office for the development of the property to the south.

2.2 REVIEW OF HISTORIC PHOTOGRAPHS

Various governmental agencies including the USGS and local flood control agencies have systematically photographed land uses since the early 1920s. These historical photographs are utilized to assist in identifying historical uses of the subject and adjacent properties. Aerial photographs available that show the subject site and surrounding land uses were analyzed for the following years and corresponding scales:

1938: 1"=500'	*1953: 1"=500'*	*1967: 1"=500'*	*1978: 1"=500'*
1985: 1"=500'	*1997: 1"=500'*	*2006: 1"=500'*	*2012: 1"=500'*
2016: 1"=500'			

Appendix A contains the aerial photographs analyzed. The subject site was marked on each photograph to show an approximate location. The following is a summary of the photograph observations of land uses on-site and in the vicinity for the corresponding years when the photographs were taken.

- The 1938 aerial photograph shows the subject site being located in an undeveloped area with agricultural uses on and surrounding the subject property. A single-family structure and trees/landscaping is evident approximately ¼-mile north of the subject site.

- The 1953 aerial photograph shows that the subject property and surrounding area continues to be used for agriculture. Structures are evident approximately ¼-mile south of the subject site. There appears to be little development that has occurred within the immediate area of the site when compared to the 1938 aerial photograph.

- The 1967 aerial photograph shows a new east-west roadway located approximately ¼-mile south of the subject property (today known as McCall Boulevard), with additional structures appearing south of the new roadway. There is no discernable change to the subject site in the 1967 aerial photograph when compared to the 1953 aerial photograph. Property surrounding the subject site and the subject site itself remain vacant.

- The 1978 aerial photograph shows additional development occurring ¼- to ½-mile south of the subject property. No other significant changes from the 1967 aerial photograph are evident. Menifee Road appears to have been developed. No structures are located on the subject site or on the immediate surrounding properties.

- The 1985 aerial photograph shows little change from the 1978 aerial photograph. The subject property and surrounding area continue to be used for agriculture.

- The 1997 aerial photograph shows little change from the 1985 aerial photograph with some development occurring approximately ½-mile north of the subject property. The subject property and surrounding area continue to be used for agriculture.

- The 2006 aerial photograph shows construction occurring on the property directly to the west of the subject site (Boulder Ridge Middle School). Property directly south of the westernmost parcels appears to be being utilized as a stockpile for the middle school construction material/equipment. Property located east of the subject property across Menifee Road appears to have been graded, and single-family homes appear to have been developed approximately ¼-mile southeast of the subject site. The subject site appears to be unchanged from the 1997 aerial and remains vacant with only routing disking.

- The 2012 aerial photograph shows completion of a single-family home development to the east of the subject site. No other significant changes from the 2006 aerial photograph are evident. The subject site appears to be fallow.

- The 2016 aerial photograph shows no significant changes from the 2012 aerial photograph. The subject site appears unchanged.

None of the historical aerial photographs reviewed show any development on the subject property or development of railroad tracks or bridges on or adjacent to the subject property that would create a REC.

2.3 HISTORIC UNITED STATES GEOLOGICAL SURVEY (USGS) MAPS

Available historic and current USGS maps that include the subject site and surrounding area were reviewed for the following years:

1901: Elsinore Quadrangle; 30 Minute Series
1947: Murrieta Quadrangle; 15 Minute Series
1953: Romoland Quadrangle; 7.5 Minute Series
1973: Romoland Quadrangle 7.5 Minute Series
1979: Romoland Quadrangle; 7.5 Minute Series
2015: Romoland Quadrangle; 7.5 Minute Series
2018: Romoland Quadrangle; 7.5 Minute Series

The USGS has produced several national series of topographic maps which vary in scale and extent in the area going back to the early 1900's. The largest (both in terms of scale and quantity) and best-known topographic series is the 7.5-minute, 1:24,000 scale, and quadrangle. Each of these maps covers an area bounded by two lines of latitude and two lines of longitude spaced 7.5 minutes apart. These maps are utilized to assist in identifying historical uses of the subject and adjacent properties and identify power lines and other physical infrastructure that could affect the subject property or the surrounding area. Appendix B contains the topographic maps reviewed, and the approximate location of the subject site is identified on each map. The subject site is currently located on the Romoland USGS Quadrangle. A summary of the review of the maps are discussed herein.

- The 1901 Elsinore Quadrangle USGS map of the area show no specific streets or development in the immediate vicinity of the subject property however the map scale lacks detail relating to structures on or in the vicinity of the site. The map shows a rail line located approximately ½-mile north of the subject property.
- The 1947 USGS map of the area shows development of a street (Menifee Road) adjacent to the easternmost parcel of the subject property. No structures or development is evident within the immediate area of the project site.
- The 1953 USGS map of the area shows no structures or development within the immediate area of the project site.
- The 1973 USGS map of the area shows the development of roads and structures approximately ¼-mile south of the subject property. No structures or development is evident within the immediate area of the project site.
- The 1979 USGS map of the area shows relatively little change when compared to the 1973 USGS map. The subject property appears unchanged.
- The 2015 USGS map of the area shows the development of roads east of Menifee Road and south of McCall Boulevard. Development of Boulder Ridge Elementary School is shown. No structures or development is evident within the immediate area of the project site.

- The 2018 USGS map of the area shows relatively little change when compared to the 2015 USGS map. However, it shows a road bisecting the property. The subject site remains vacant and undeveloped.

None of the historic USGS maps reviewed show any development of railroad tracks, utility easements, or bridges on the subject property.

3.0 SITE VISIT

Summary: A site inspection was conducted on July 28, 2022. The subject property was active with construction equipment, portable construction offices, numerous shipping containers (aka, PODS), as well as stockpiles of various materials (earth, fines from grading, gravel, etc.). It appears these uses are supporting the development of the adjacent property to the south. No building foundations or remnants were observed on the subject property. No evidence of underground storage tanks, stained soils, electrical transformers, or seepage pits were present. High voltage power lines were observed along the eastern edge of the property adjacent to Menifee Road. Refer to Appendix C for photographs depicting the site and surrounding properties.

3.1 PROPERTY EVALUATION

On-Site Observations

Mr. Frank Amendola and Giang Ngo of Lilburn Corporation conducted a site survey/property evaluation on July 28, 2022. Table 1 presents a summary of the site survey/property evaluation.

Table 1
Summary of Site Reconnaissance

Observed on-site?	Yes	No
Existing structures		●
Power line towers	●	
Evidence of past uses (foundations, debris, roads)		●
Hazardous substances and/or petroleum products (including containers)		●
Aboveground storage tanks (ASTs) or evidence of ASTs		●
Underground storage tanks (USTs) or evidence of USTs		●
Strong, pungent, or noxious odors		●
Pools of liquid likely to be hazardous materials or petroleum products		●
55-gallon drums		●
Unidentified substance containers		●
PCB-containing equipment		●
Subsurface hydraulic equipment		●
Stains or corrosion on floors, walls, or ceilings		●
Floor drains and sumps		●
Pits, ponds, or lagoons		●
Stained soil and/or pavement		●
Stressed vegetation		●
Waste or wastewater discharges to surface or surface waters on subject site (including stormwater)		●
Wells (irrigation, domestic, dry, injection, abandoned, monitoring)		●
Septic systems		●

Access to property was from Menifee Road and was unrestricted. However, the property was fenced along Junipero Road and E. Heritage Lake Drive. Portions of the property to the west

were being used as a construction staging area for the development of the adjacent property to the south. Numerous shipping containers were evident as well as stockpiles of earth and fines from grading. The eastern portion of the property was vacant and clear of construction uses. Refer to Appendix C for photographs of various views of the subject site and surrounding properties.

No permanent structures or remnants of foundations were observed during the site visit. No discoloration of soils was evident and no remnants of underground storage tanks were observed during the visual site inspection. Although high voltage power lines are present on the eastern portion of the subject property along Menifee Road, there were no electrical transformers observed. Signage adjacent to Menifee Road near the site indicates the presence of underground high pressure gas lines.

Surrounding Land Uses

A summary description of surrounding land uses follows:

West Land Uses
Land uses to the west of the subject property consist of Junipero Road and Boulder Ridge Elementary School.

South Land Uses
Land uses to the south of the subject property include undeveloped property. However, it was being developed at the time of the site visit. A construction fence was evident.

North Land Uses
Land uses north of the subject property consist of E. Heritage Lake Drive and single-family homes.

East Land Uses
Land uses east of the subject property consist of Menifee Road and single-family homes.

3.2 PROPERTY OWNER/AGENT INTTERVIEWS

No interviews with the current landowner as no one was available that was familiar with prior uses.

4.0 LIMITED SOIL SAMPLING AND ANALYSIS

Summary: Laboratory results of four soil samples collected did not indicate any issues of concern related to any residual pesticides or biosolids. Appendix D includes the Limited Subsurface Investigative Report and Laboratory testing results, which are summarized below.

4.1 PESTICIDE AND BIOSOLID SOIL SAMPLE LOCATIONS AND PROCEDURES

Samples were collected from depths of 6 inches below grade (18 samples), with the aid of a hand auger. Prior to sampling and between samples, reusable drilling and sampling equipment was cleaned using an Alconox wash and two potable water rinses prior to the beginning of the project and before collecting each soil sample to ensure that cross-contamination of samples did not occur. The sample packaging consisted of placing the soil directly into laboratory provided containers. The field crew used new nitrile gloves for each sample collection to prevent cross contamination. The samples were labeled, sealed, recorded on chain-of-custody forms and stored in a chilled ice chest pending delivery to the laboratory.

4.2 LABORATORY ANALYSIS

The laboratory composited the discrete samples at a 3:1 ratio for laboratory analysis. The soil samples and completed chain-of-custody forms were relinquished to SunStar Laboratories Inc., in Lake Forest, California, a State-of-California certified laboratory for analysis.

4.3 ANALYTICAL RESULTS

All analytical results for organochlorine pesticides in the four samples were non-detect, indicating the soil is not impacted by organochlorine pesticides.

The findings were as follows:

- No indications of staining or significant impacts based on field observations.
- Soil analysis for OCPs and arsenic were below the specified laboratory report limits and applicable screening limits.
- IDW was not generated for this investigation.
- Groundwater was not encountered to the total depth of 0.5 feet bgs.

Based on the field observations and laboratory data, evidence of significant impairment was not identified in the areas accessible and investigated, and at the time the investigation was conducted. Concentrations of detected analytes were below applicable residential and commercial screening levels.

Based on the soil testing conducted, there is no indication of a REC due to potential biosolid application to the subject property. Refer to Appendix D for the comprehensive soil analysis results, prepared by Terracon.

5.0 GEOLOGY AND HYDROGEOLOGY

Summary: No geologic or hydrogeologic concerns were encountered during the site visit, which would be considered "an impairment" to the use of the subject site or a REC. According to the Environmental Data Resources, Inc. (EDR) report the project site is not within the 100-year or 500-year flood plain. Refer to Appendix E for the EDR Report.

5.1 GEOLOGY

Topography

The topography of the subject site is relatively flat and varies little from north to south. The subject site is at an elevation of approximately 1461 feet above mean sea level (amsl). The subject property generally falls from south to north and should not create concerns regarding landslides, erosion, or ground failure. Therefore, development of the site is not anticipated to be impaired.

Seismic Fault Systems

According to the Southern California Earthquake Data Center (www.data.scec.org), several fault systems are located within relatively close proximity to the subject site. The subject site lies on the western edge of the San Jacinto Fault Zone that is capable of producing a maximum credible earthquake magnitude (M_w) of 6.5-7.5. The most recent surface rupture was on April 9, 1968.

Earthquakes, due to their ground acceleration and shifting, can cause major damage to buildings and create dangerous hazards to people through injury or death. Development projects in the seismically-active southern California region must mitigate these potential hazards through strict adherence to the California Building Code (CBC) and implementing recommendations from geotechnical engineers.

5.2 REGIONAL HYDROLOGY AND GROUNDWATER

FEMA Flood Zone Mapping

According to the Environmental Data Resources, Inc. (EDR) report included as Appendix E, the project site is located within Flood Plain Panel 06065C and is not within the 100-year or 500-year flood plain.

Groundwater/Well Data

The EDR report identifies 16 wells located with a 1-mile radius of the subject property, none of which are located within a 1/8-mile radius. All of the wells within the 1-mile radius are either cross-gradient or down-gradient from the subject property.

6.0 LOCAL AGENCY REVIEW

Summary: The County of Riverside Department of Environmental Health-Hazardous Materials Division was contacted as part of the EDR records search. As of August 8, 2022, the records request is pending. Other records reviewed include County of Riverside Building Department, Sanborn Fire Insurance maps, City of Menifee-Planning Division, and local RADON reporting data.

Various local (County) agencies maintain databases or records which are useful for evaluating the history of a property, and which may provide indications pertaining to the past uses of the property and any potential environmental concerns. For the purposes of this ESA, records reviewed are presented below.

- County of Riverside Environmental Health Division, Hazardous Material Department
- County of Riverside Building Department
- City of Menifee Planning Division
- Sanborn Fire Insurance Mapping

County of Riverside Building Department

A review of the County of Riverside Building Department records for building permits issued on the subject property were as follows: On November 2, 2004, a grading permit was issued on the Subject Site for a grading stockpile. The permit description included the following language: Import Stockpile For TR31457. The permit is no longer active.

County of Riverside Environmental Health Department, Hazardous Material Division

The County of Riverside Department of Environmental Health, Hazardous Materials Division was contacted for a hazard's records search. As of August 8, 2022, the records request finding continues to be pending.

City of Menifee Planning Division

The City of Menifee Planning Division was contacted. No planning records were found on the subject site.

Sanborn Fire Insurance Mapping

The Sanborn Maps were originally created for assessing fire insurance liability in urbanized areas in the United States. No Sanborn maps covering the subject property were available for review.

Area Radon Information

No testing for radon was performed as part of this ESA, however a review of available information for the subject area (zip code 92585), revealed that six (6) tests for radon gas within structures have been performed in the area and none of the tests performed indicated radon levels within the structures in excess of 4 pCi/L[2] (Picocuries Per Liter).

[2] 4 pCi/L is the EPA lower action limit for habitable structures. Levels in excess of 4 pCi/L typically require remediation.

7.0 REGULATORY REVIEW

Summary: A review of Federal and State environmental databases revealed no environmental concerns or issues directly related to the site, which would be considered "an impairment" or REC. However, the review of the EDR records search revealed several sites of potential concern within the vicinity. These sites appear to be in compliance with applicable hazardous waste regulations as they are either a permitted operation, actively in remedial work, or remedial work has been completed. These sites are not anticipated to impact the subject property as they are located either a greater distance than would warrant establishment of a REC or are cross-gradient or down-gradient of the subject site and applicable water flow. Refer to Appendix E for additional information.

The State of California and various federal government agencies investigate and/or track numerous environmental concerns on a regional basis. For the purposes of this ESA, the following agency records were reviewed for a one-mile radius of the subject property.

FEDERAL RECORDS

NPL: National Priority List
Source: EPA
Telephone: N/A
National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Proposed NPL: Proposed National Priority List Sites
Source: EPA
Telephone: N/A
This database includes site proposed for listing in the NPL database.

DELISTED NPL: National Priority List Deletions
Source: EPA
Telephone: N/A
The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establish the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

NPL LIENS: Federal Superfund Liens
Source: EPA
Telephone: 205-564-4267
Federal Superfund Liens. Under the authority granted the USEPA by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or

when the property owner receives notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System
Source: EPA
Telephone: 703-412-9810
CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by States, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS includes sites that are either proposed for or on the National Priorities List (NPL), and sites that are in the screening and assessment phase for possible inclusion on the NPL.

CERCLIS - NFRAP: No Further Remedial Action Planned
Source: EPA
Telephone: 703-412-9810
As of February 1995, CERCLIS sites designated "No Further Remedial Action Planned" (NFRAP) have been removed from CERCLIS. NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the need for the site to be placed on the NPL, or the contamination was not serious enough to require Federal Superfund action or NPL consideration. EPA has removed approximately 25,000 NFRAP sites to lift the unintended barriers to the redevelopment of these properties and has archived them as historical records so EPA does not needlessly repeat the investigations in the future. This policy change is part of the EPA's Brownfields Redevelopment Program to help cities, States, private investors and affected citizens to promote economic redevelopment of unproductive urban sites.

LIENS 2: CERCLA Lien Information
Source: EPA
Telephone: 202-564-6023
Database provides information as the identity of sites and properties that have used Superfund funds.

CORRACTS: Corrective Action Report
Source: EPA
Telephone: 800-424-9346
CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

RCRA: Resource Conservation and Recovery Act Information
Source: EPA
Telephone: 415-495-8895
RCRA Info is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS). The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as

defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month. Large quantity generators (LQGs) generate over 1,000 kg of hazardous waste, or over 1kg of actual hazardous waste per month. Transporters are individuals or entities that move hazardous waste from the generator off-site that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

US ENG CONTROLS: Engineering Controls Sites List
Source: Environmental Protection Agency
Telephone: 703-603-8905
A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

US INST CONTROL: Sites with Institutional Controls
Source: Environmental Protection Agency
Telephone: 703-603-8905
A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

ERNS: Emergency Response Notification System
Source: EPA/NTIS
Telephone: 202-267-2180
Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

HMIRS: Hazardous Materials Information Reporting System
Source: U.S. Department of Transportation
Telephone: 202-366-4555
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

DOT OPS: Incident and Accident Data
Source: Department of Transportation, Office of Pipeline Safety
Telephone: 202-366-4595
Pipeline safety and incident report database.

CDL: Clandestine Drug Labs
Source: Department of Toxic Substances Control
Telephone: 916-255-6504
A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

US BROWNFIELDS: A Listing of Brownfields Sites
Source: Environmental Protection Agency
Telephone: 202-566-2777
Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assessment Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients-States, political subdivisions, territories, and Indian tribes become Brownfields Cleanup Revolving Loan Fund (BCRLF) cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

DOD: Department of Defense Sites
Source: USGS
Telephone: 703-692-8801
This data sets consists of federally owned or administered lands, administered by the Department of Defense, that have any equal to or greater than 640 acre of the United States, Puerto Rico, and the U.S. Virgin islands.

FUDS: Formerly Used Defense Sites
Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

LUCIS: Land Use Control Information System
Source: Department of the Navy
Telephone: 843-820-7326
Database contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

CONSENT: Superfund (CERCLA) Consent Decrees
Source: EPA Regional Offices
Telephone: Varies
Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters. Date of Government Version.

ROD: Records of Decision
Source: NTIS
Telephone: 703-416-0223
Record of Decision. ROD documents mandate a permanent remedy at a NPL (Superfund) site containing technical and health information to aid in the cleanup.

UMTRA: Uranium Mill Tailings sites
Source: Department of Energy
Telephone: 505-845-0011
Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized. In 1978, 24 inactive uranium mill tailings sites in Oregon, Idaho, Wyoming, Utah, Colorado, New Mexico, Texas, North Dakota, South Dakota, Pennsylvania, and on Navajo and Hopi tribal lands, were targeted for cleanup by the Department of Energy.

ODI: Open Dump Inventory
Source: Environmental Protection Agency
Telephone: 800-424-9346
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
Source: EPA
Telephone: 415-972-3336
A listing of illegal dump sites located on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

MINES: Mines Master Index File
Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959

TRIS: Toxic Chemical Release Inventory System
Source: EPA
Telephone: 202-566-0250
Toxic Release Inventory System. TRIS identifies facilities that release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

TSCA: Toxic Substances Control Act
Source: EPA
Telephone: 202-260-5521
Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

FTTS: FIFRA/TSCA Tracking System – FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act)/TSCA(Toxic Substance Control Act)
Source: EPA
Telephone: 202-566-1667
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

FTTS INSP: FIFRA/TSCA Tracking System – FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act)/TSCA(Toxic Substance Control Act)
Source: EPA
Telephone: 202-564-1667

HIST FTTS: FIFRA/TSCA Tracking System Administration Case Listing
Source: EPA
Telephone: 202-564-2501
Database tracks establishments that generate pesticide use within the course of the calendar year.

SSTS: Section & Tracking System
Source: EPA
Telephone: 202-564-4203
Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

ICIS: Integrated Compliance Information System
Source: EPA
Telephone: 202-564-5088
The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

PADS: PCB Activity Database System
Source: EPA
Telephone: 202-566-0500
PCB Activity Database. PADS Identifies generators, transporters, commercial stores and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

MLTS: Material Licensing Tracking System
Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements.

RADINFO: Radiation Information Database
Source: EPA
Telephone; 202-343-9775
Contains information about facilities that are regulated by U.S. EPA regulations for radiation and radioactivity.

FINDS: Facility Index System/Facility Identification Initiative Program Summary Report
Source: EPA
Telephone: 415-947-8000
Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

RAATS: RCRA Administrative Action Tracking System
Source: EPA
Telephone: 202-564-4104
RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA retains a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

BRS: Biennial Reporting System
Source: EPA/NTIS
Telephone: 800-424-9346
The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

STATE AND LOCAL RECORDS:

HIST CAL-SITES: Calsites Database
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

SCH: School Property Evaluation Program
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the Cal Sites category depending on the level of threat to public health and safety or the environment they pose.

TOXIC PITS: Toxic Pits Cleanup Act Sites
Source: State Water Resources Control Board
Telephone: 916-227-4364
Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

SWF/LF (SWIS): Solid Waste Information System
Source: Integrated Waste Management Board
Telephone: 916-341-6320
Active, Closed and Inactive Landfills. SWF/LF records typically contain an inventory of solid waste disposal facilities or landfills. These may be active or inactive facilities or open dumps that failed to meet RCRA Section 2004 criteria for solid waste landfills or disposal sites.

WMUDS/SWAT: Waste Management Unit Database
Source: State Water Resources Control Board
Telephone: 916-227-4448
Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

CA WDS: Waste Discharge system
Source: State Water Resources Control Board
Telephone: 916-341-5227
Sites that have been issued waste discharge requirements.

CORTESE: "Cortese" Hazardous Waste & Substance Sites List
Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
The sites for the list are designated by the State Water Resources Control Board (LUST), the Integrated Waste Management Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

SWRCY: Recycler Database
Source: Department of Conservation
Telephone: 916-323-3836
A listing of recycling facilities in California.

LUST: Geotracker's Leaking Underground Fuel Tank Report
Source: State Water Resources Control Board
Telephone: Per Region
Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

CA FID UST: Facility Inventory Database
Source: California Environmental Protection Agency
Telephone: 916-341-5851
The facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resources Control Board.

SLIC: Statewide SLIC Cases
Source: State Water Resources Control Board
Telephone: 886-480-1028
The Spills, Leaks, Investigations, and Cleanups (SLIC) listings includes unauthorized discharges from spills and leaks, other than from underground storage tanks or other regulated sites.

UST: Active UST Facilities
Source: State Water Resources Control Board
Telephone: 916-480-1028
Active UST facilities gathered from the local regulatory agencies.

UST MENDOCINO: Mendocino County UST Database
Source: Department of Public Health
Telephone: 707-463-4466
A list of underground storage tanks in Mendocino County.

HIST UST: Hazardous Materials Storage Container Database
Source: State Water Resources Control Board
Telephone: 916-341-5851
The Hazardous Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

AST: Aboveground Petroleum Storage Tank Facilities
Source: State Water Resources Control Board
Telephone: 916-341-5712
Registered Aboveground Storage Tanks.

LIENS: Environmental Liens Listing
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
A listing of property locations with environmental liens for California where DTSC is a lien holder.

SWEEPS UST: SWEEPS UST Listing
Source: State Water Resources Control Board
Telephone: N/A
Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1980s? The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

CHMIRS: California Hazardous Material Incident Report System
Source: Office of Emergency Services
Telephone: 916-845-8400
California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

NOTIFY 65: Proposition 65 Records
Source: State Water Resources Control Board
Telephone: 916-445-3846
Proposition 65 Notification Records. NOTIFY 65 contains facility notifications about any release which could impact drinking water and thereby expose the public to a potential health risk.

DEED: List of Deed Restrictions
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
The use of recorded land use restrictions is one of the methods the DTSC uses to protect the public from unsafe exposures to hazardous substances and wastes.

VCP: Voluntary Cleanup Program Properties
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

DRY CLEANERS: Cleaner Facilities
Source: Department of Toxic Substances Control
Telephone: 916-327-4498
A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial, garment pressing and cleaner's agents, linen supply, coin-operated laundries and cleaning, drycleaning plants, except rugs, carpet and upholstery cleaning, industrial launders, laundry and garment services.

WIP: Well Investigation Program Case List
Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Well investigation program case in the San Gabriel and San Fernando Valley area.

CDL: Clandestine Drug Labs
Source: Drug Enforcement Administration
Telephone: 202-307-1000
Database provides a listing of clandestine drug lab locations.

RESPONSE: State Response Sites
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

HAZNET: Hazardous Waste Information System
Source: California Environmental Protection Agency
Telephone: 916-255-1136
Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the Department of Toxic Substances Control (DTSC). The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method.

EMI: Emissions Inventory Data
Source: California Air Resources Board
Telephone: 916-322-2990
Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

HAULERS: Registered Waste Tire Haulers Listing
Source: Integrated Waste Management Board
Telephone: 916-341-6422
A listing of registered waste tire haulers.

ENVIROSTOR: EnviroStor Database
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides

additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

TRIBAL REORDS

INDIAN RESERV: Indian Reservations
Source: USGS
Telephone: 202-208-3710
This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

INDIAN LUST: Leaking Underground Storage Tanks on Indian Land
Source: Environmental Protection Agency
Telephone: 617-918-1313
Leaking Underground Storage Tanks on Indian land in Arizona, California, New Mexico and Nevada

INDIAN UST: Underground Storage Tanks on Indian Land
Source: EPA Region 9
Telephone: 415-972-3368
Underground Storage Tanks on Indian land in Arizona, California, New Mexico and Nevada

HISTORICAL AND OTHER DATABASE(S)

Depending on the geographic area covered by the EDR Report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included.

Other Databases

Manufactured Gas Plants: EDR Proprietary Manufactured Gas Plants
The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

EDR Historical Auto Stations: EDR Proprietary Historic Gas Stations
EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include

gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc.

EDR Historical Cleaners: EDR Proprietary Historic Dry Cleaners
EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc.

7.1 TARGET PROPERTY SEARCH RESULTS

A search of available environmental records was conducted by Environmental Data Resources, Inc. (EDR) and reviewed a part of this ESA. The EDR database report meets the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) for the evaluation of environmental risk associated with a parcel of real estate. The subject property was not identified on any of the databases searched.

7.2 SURROUNDING SITES SEARCH RESULTS

EDR was utilized to conduct a search of environmental databases within a 1-mile radius of the subject site to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) for the evaluation of environmental risk associated with a parcel of real estate. Identified properties that are down-gradient of the subject site are not listed herein. Additionally, some identified properties are listed on multiple databases and have been excluded from the duplicative databases herein. Refer to Appendix E for the EDR Report.

STANDARD ENVIRONMENTAL RECORDS

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database include: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites. A review of the ENVIROSTOR list has revealed that there are 4 ENVIROSTOR sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Dir/Dist	Map ID	Page
Menifee Valley Ranch School	McCall Blvd Menifee Street	SE 0 – 1/8	1	8
McCall Mesa K-8 School	McCall Blvd Junipero	SW 0-1/8	2	11

Equal/Higher Elevation	Address	Dir/Dist	Map ID	Page
Elementary School #1	Chambers Avenue	WSW ½-1	3	14
Proposed Elementary	Rouse Road	W ½-1	4	17

This category contains proposed and existing school sites that were being evaluated by DTSC for possible hazardous materials contamination. The investigations did not reveal any contamination at the sites that would be considered a REC and no further action was required. This listing does not represent a release of hazardous are therefore the sites are not considered a REC.

Orphan Sites: These are sites that cannot be mapped because of poor or inadequate information relating to the location of the site in relation to the subject site. Further information was not obtained for these sites.

Based on the information obtained from the EDR report, all of the sites could be eliminated as potential locations of environmental concern to the subject site as they are located greater than one mile from the project site or are a permitted (permit issued to operate) local/State/federal operation.

7.3 VAPOR ENCROACHMENT

The purpose of the preliminary vapor encroachment screen is to identify a vapor encroachment condition (VEC), which is the presence or likely presence of vapor chemicals of concern (COC) in subsurface soils at the site caused by the release of volatile organic compounds from contaminated soils or groundwater either on or near the site. The potential for VECs beneath the site was evaluated using EDR's Vapor Encroachment Screen in accordance with ASTM E 2600-10 Standard Guide for Vapor Encroachment Screening. The evaluation included performing a Search Distance Test to identify if there are any known or potential contaminated properties surrounding or up gradient of the site within specific search radii, a COC test (for those known or suspect contaminated sites identified within the Search Distance Test) to evaluate whether or not COCs are likely to be present, and a Critical Distance Test to evaluate whether or not COCs in a contaminated plume may be within the critical distance of the site (100 feet for non-petroleum hydrocarbon contaminants and 30 feet for petroleum hydrocarbons contaminants).

A review of the Vapor Encroachment Screen, as provided by EDR, and dated June 10, 2022 has revealed two COC site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Dir/Dist	Map ID	Page
Menifee Valley Ranch School	McCall Blvd Menifee Street	SE 1/10 – 1/3	1	8
McCall Mesa K-8 School	McCall Blvd Junipero	SSW 1/10-1/3	2	11

These sites are not anticipated to present any environmental impact to the subject property as the listing herein is a required reporting of their operations and not a violation of local, state, or federal regulations. Refer to Appendix E-1 for Vapor Encroachment Screen Report.

8.0 CONCLUSION

Summary: The review of the EDR records search revealed no sites of concern within the vicinity of the subject property that could represent a REC.

Based on a visual inspection of the subject site and the surrounding area; an environmental records search and review of local, federal, and State databases; and in accordance with the limitations presented in this report, Lilburn Corporation presents the following conclusions concerning the subject site:

- No evidence was observed that the property has been used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility. Additionally no evidence was observed that there have been any previously damaged or discarded automotive or industrial batteries, or pesticides, paints, or other chemicals individually stored on or used at the property or at the subject site. No industrial drums (typically 55 gal (208 L)) or sacks of chemicals were observed on the property.
- No evidence that fill dirt has been brought onto the property that originated from a contaminated site or from an unknown origin was observed. Refer to Section 4.0 for soil sampling findings.
- No pits, ponds, or lagoons were observed on the property in connection with waste treatment or waste disposal.
- No signs or evidence or of stained soil were observed on the property.
- No evidence was observed of any registered or unregistered storage tanks (above or underground) located on the property and no observations of any vent pipes, fill pipes, or access ways indicating a fill pipe protruding from the ground on the property or adjacent to any structure located on the property were made.
- No indication or evidence of leaks, spills, or staining by substances other than water, or foul odors, associated with any flooring drains, walls, ceilings or exposed grounds on the property was observed.
- No observations were made of evidence that any hazardous substances or petroleum products, unidentified waste materials, tires, automotive or industrial batteries, or any other waste materials have been buried and/or burned on the property.
- No transformer, capacitor, or any hydraulic equipment for which there are any records indicating the presence of PCBs was observed.
- No evidence was observed indicating any adjoining property was used as a gasoline station, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility.

- Local records reviewed to date have not revealed environmental concerns or issues that would be considered an immediate impairment to property development (pending San Bernardino County Fire Department findings).
- No geologic or hydrogeologic impairments to the subject site were encountered.
- Federal and State environmental databases revealed no environmental issues, which would be considered "an impairment" or REC to the subject site. Refer to Appendix E for a copy of the EDR Reports.

Based on the field reconnaissance of the site a Phase I and limited Phase II site assessment is sufficient to evaluate the property in question and additional site investigations are not recommended.

CERTIFICATION

I, Frank Amendola, certify and agree that:

(1) The inspector has no present or contemplated future interest in the site inspected.

(2) The inspector has no personal interest in or bias with respect to the subject matter of the assessment report or the participants to the sale. This Site Assessment Report is not based in whole or in part upon the race, color, or national origin of the prospective owners or occupants of the site inspected, or upon the race, color or national origin of the present owners or occupants of the properties in the vicinity of the site inspected.

(3) The inspector has personally inspected the site and has made an exterior inspection of all adjacent properties identified in the report. To the best of the inspector's knowledge and belief, all statements and information in this Site Assessment Report are true and correct, and the inspector has not knowingly withheld any significant information.

(4) The legal description and address furnished is correct according to the information furnished to the inspector.

(5) This Site Assessment Report was prepared in conformity with and is subject to the requirements of the Code of Professional Ethics and Standards of Professional Conduct of the environmental organizations with which the inspector is affiliated.

(6) All conclusions and opinions concerning the subject site that are set forth in the Site Assessment Report were prepared by the inspector whose signature appears below.

(7) I declare that to the best of my professional knowledge and belief, I meet the definition of an Environmental Professional as defined in ASTM E 1527-05 and 40 CFR 312.10. I have the specific qualification based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed all appropriate inquiries in conformance with the standard and practices set forth in 40 CFR Part 312.

Prepared By:



Frank Amendola

QUALIFICATIONS STATEMENT

Lilburn Corporation is a full service environmental consulting company with extensive experience in the completion of Phase I ESAs having completed more than 50 ESAs since 1999. Lilburn staff responsible for preparation of Phase I ESAs (including this document) have extensive experience in completing Phase I ESAs in accordance with the current American Society of Testing and Materials standard practice document (ASTM E 1527-05). The resumes of the individual environmental professionals responsible for the completion of this Phase I ESA are included in Appendix F.

This Phase I ESA was completed under the direction of an "Environmental Professional" as defined in ASTM E 1527-005 and 40 CFR 312.10. The Environmental Professional was involved in the planning of the site reconnaissance and the interviews as well as the review and preparation of the report.

LIMITATIONS

The services described in this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. Not laboratory testing was performed in conjunction with this report. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, nor the use of segregated portions of this report.

The purpose of an environmental assessment is to reasonably evaluate the potential for or actual impact of past practices on a given site area. In performing an environmental assessment, it is understood that a balance must be struck between a reasonable inquiry into the environmental issues and an exhaustive analysis of each conceivable issue of potential concern. The following paragraphs discuss the assumptions and parameters under which such an opinion is rendered.

No investigation is thorough enough to exclude the presence of hazardous materials at a given site. If hazardous conditions have not been identified during the assessment, such a finding should not therefore be construed as a guarantee of the absence of such materials on the site, but rather as the result of the services performed within the scope, limitations, and cost of the work performed.

Environmental conditions may exist at the site that cannot be identified by visual observation. Where subsurface work was performed, our professional opinions are based in part on interpretation of data from discrete sampling locations that may not represent actual conditions at unsampled locations.

Except where there is express concern of our client, or where specific environmental contaminants have been previously reported by others, naturally occurring toxic substances, potential environmental contaminants inside buildings, or contaminant concentrations that are not of current environmental concern may not be reflected in this document.

REFERENCES

Aerial Photo Decade Package, Environmental Data Resources, Inc., (June 9, 2022)

Historical Topographic Map Report, Environmental Data Resources, Inc., (June 9, 2022)

Summary Radius Map Report, Environmental Data Resources, Inc., (June 9, 2022)

EDR Vapor Encroachment Screen, (June 10, 2022)

Building Report, Environmental Data Resources, Inc., (June 22, 2022)

City of Menifee, Records Search Request. (June 22, 2022).

Certified Sanborn Map Report, Environmental Data Resources, Inc., (June 9, 2022)

Southern California Earthquake Data Center, www.data.scec.org

California City Radon Data, http://www.city-data.com/radon-zones/California/California.html

APPENDIX A
AERIAL PHOTOGRAPHS

Junipero Road and McCall Blvd

Junipero Rd

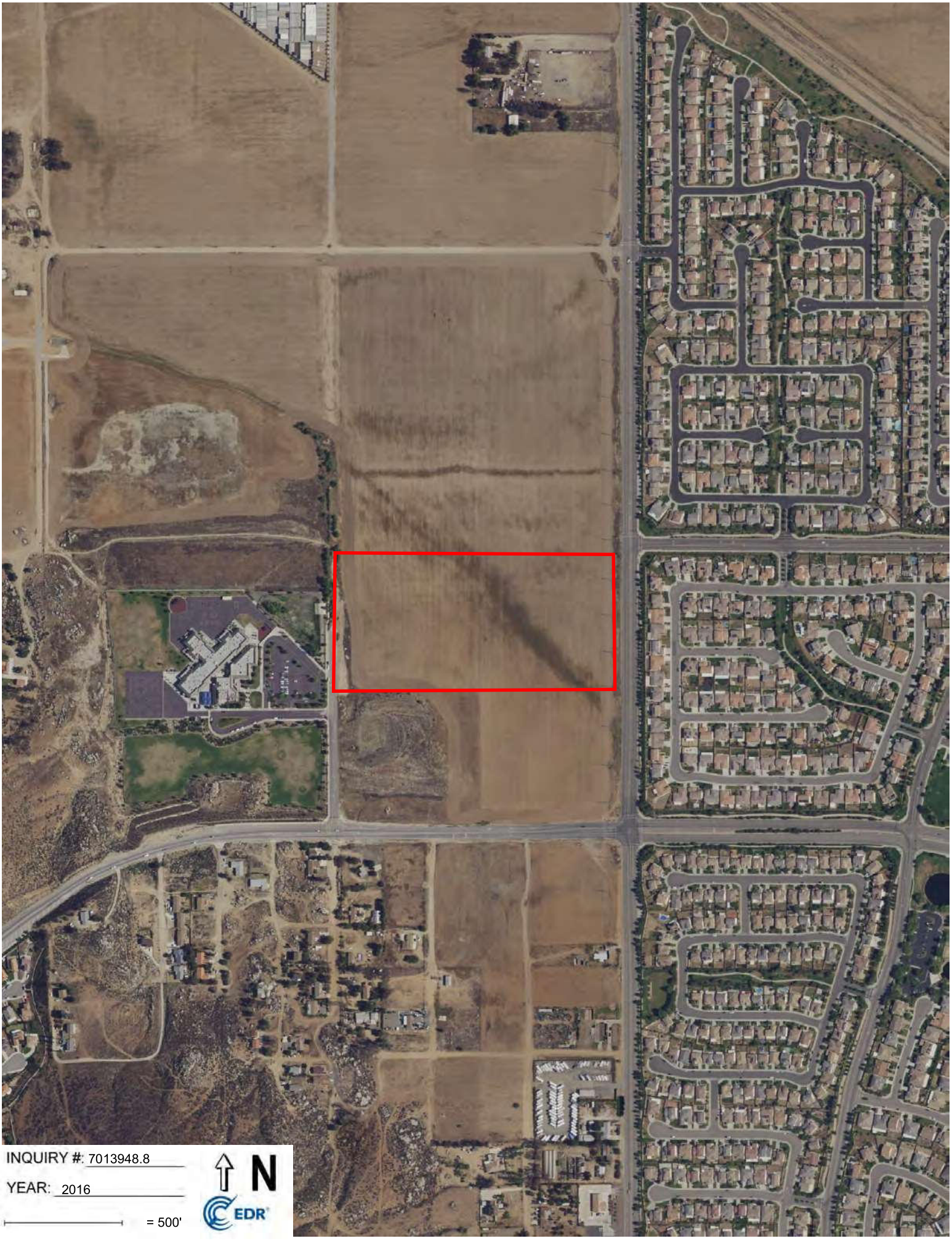
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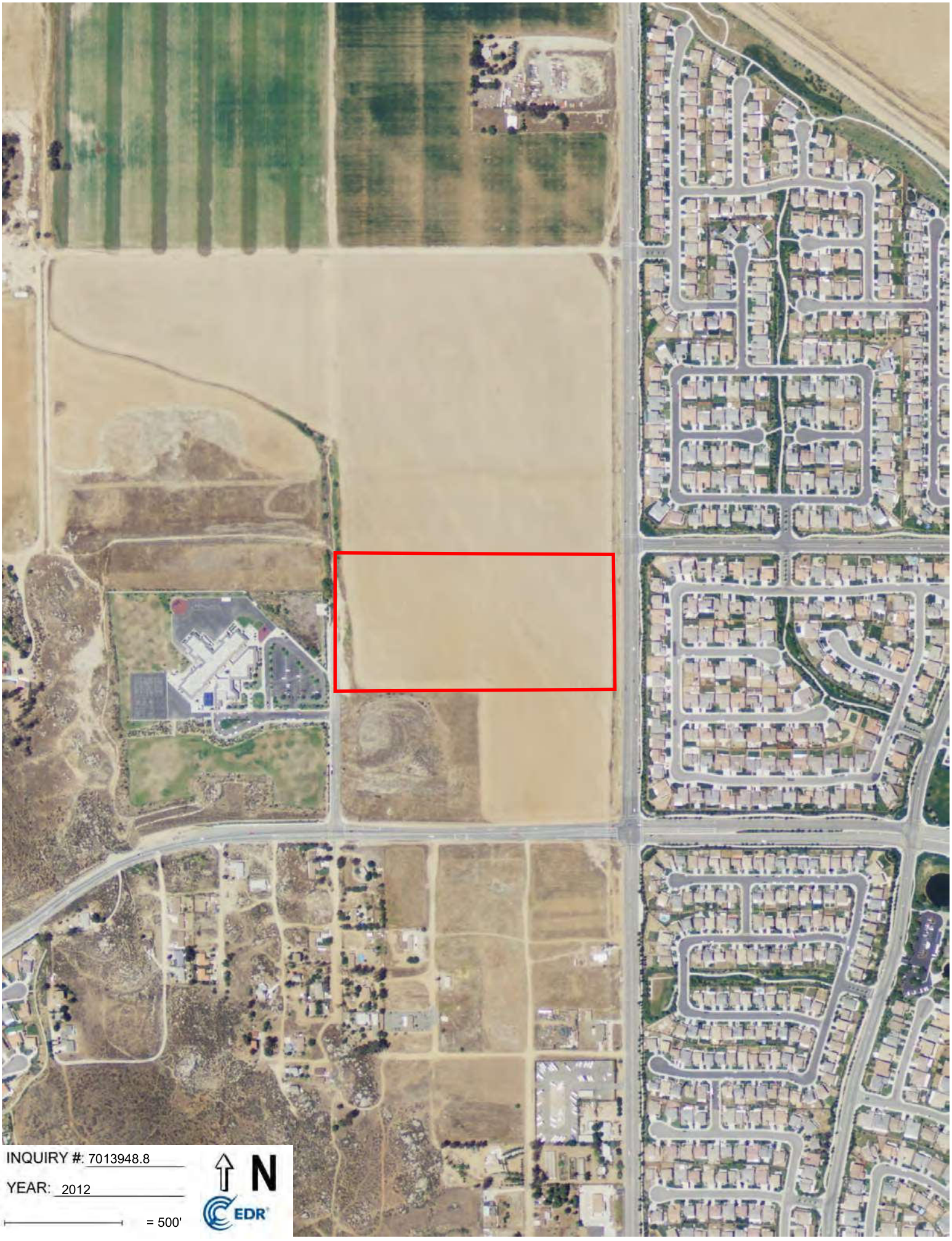
Inquiry Number: 7013948.8

June 09, 2022

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com


INQUIRY #: 7013948.8
YEAR: 2016
= 500'
N
EDR


INQUIRY #: 7013948.8
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= 500'
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EDR


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EDR

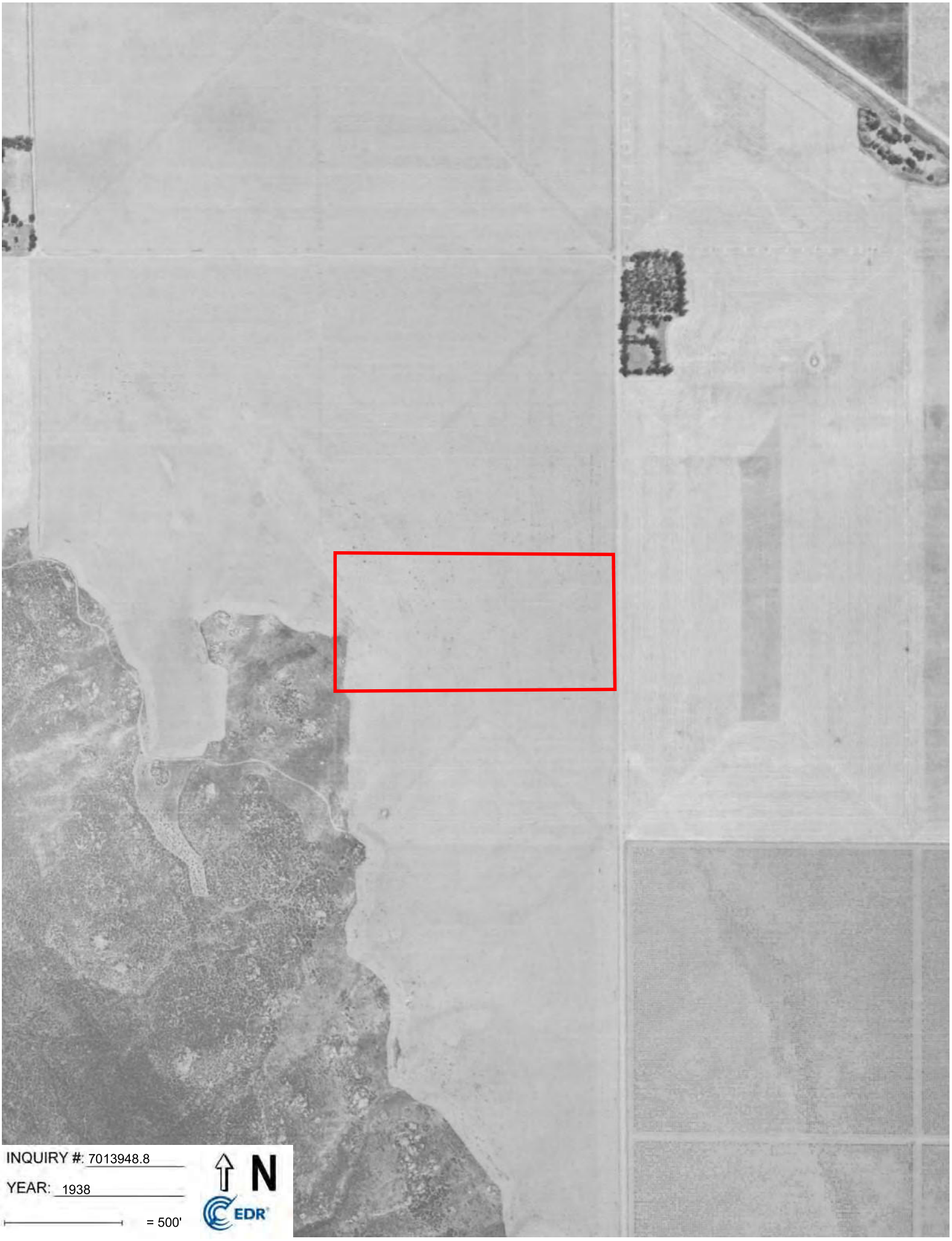

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EDR


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EDR


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EDR


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EDR



INQUIRY #: 7013948.8

YEAR: 1938

= 500'

N

EDR

APPENDIX B
HISTORICAL TOPOGRAPHIC (USGS) MAPS

Junipero Road and McCall Blvd

Junipero Rd

Menifee, CA 92585

Inquiry Number: 7013948.4

June 09, 2022

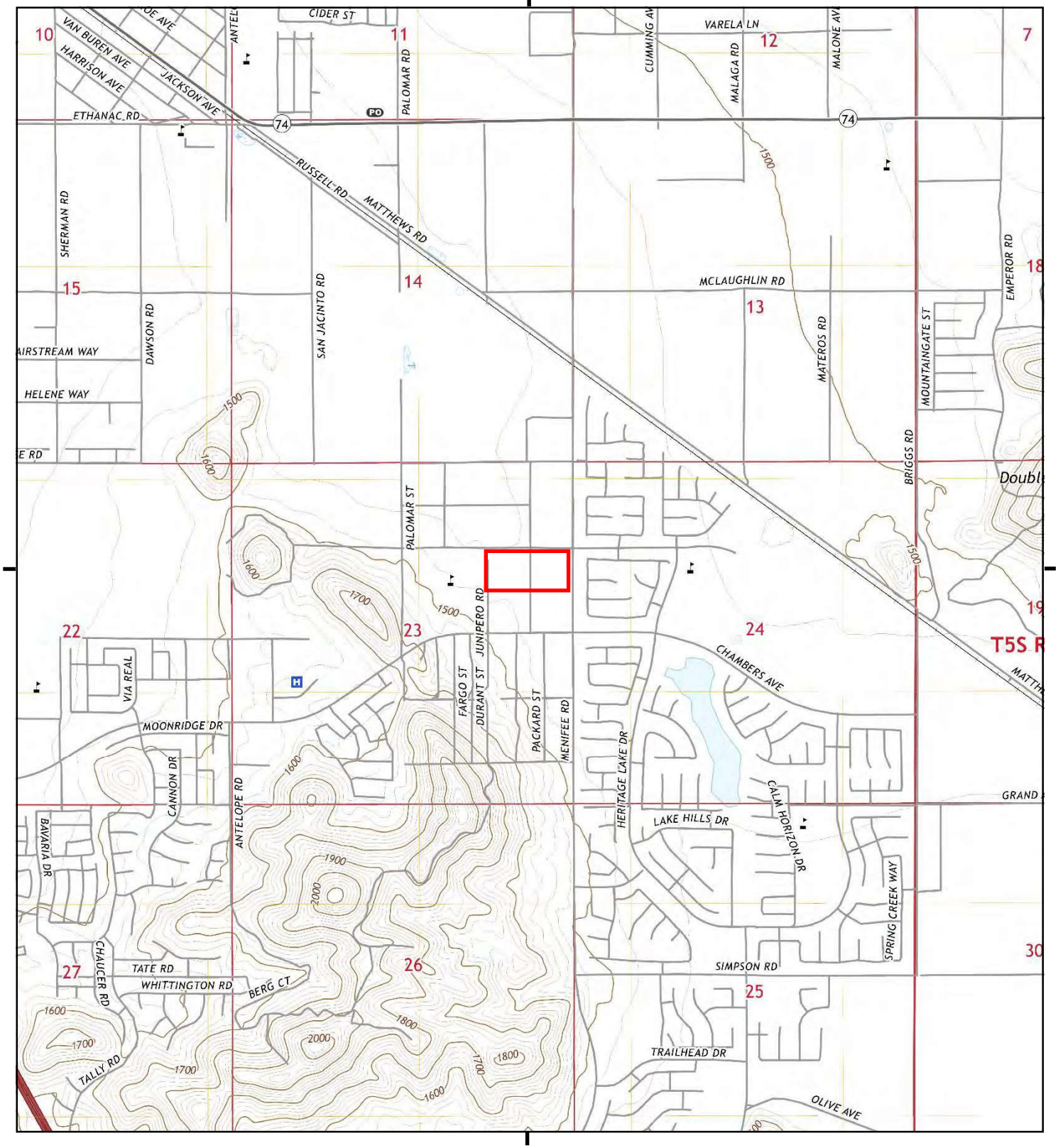
EDR Historical Topo Map Report

with QuadMatch™

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Historical Topo Map

2018



This report includes information from the following map sheet(s).

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W E
SW S SE

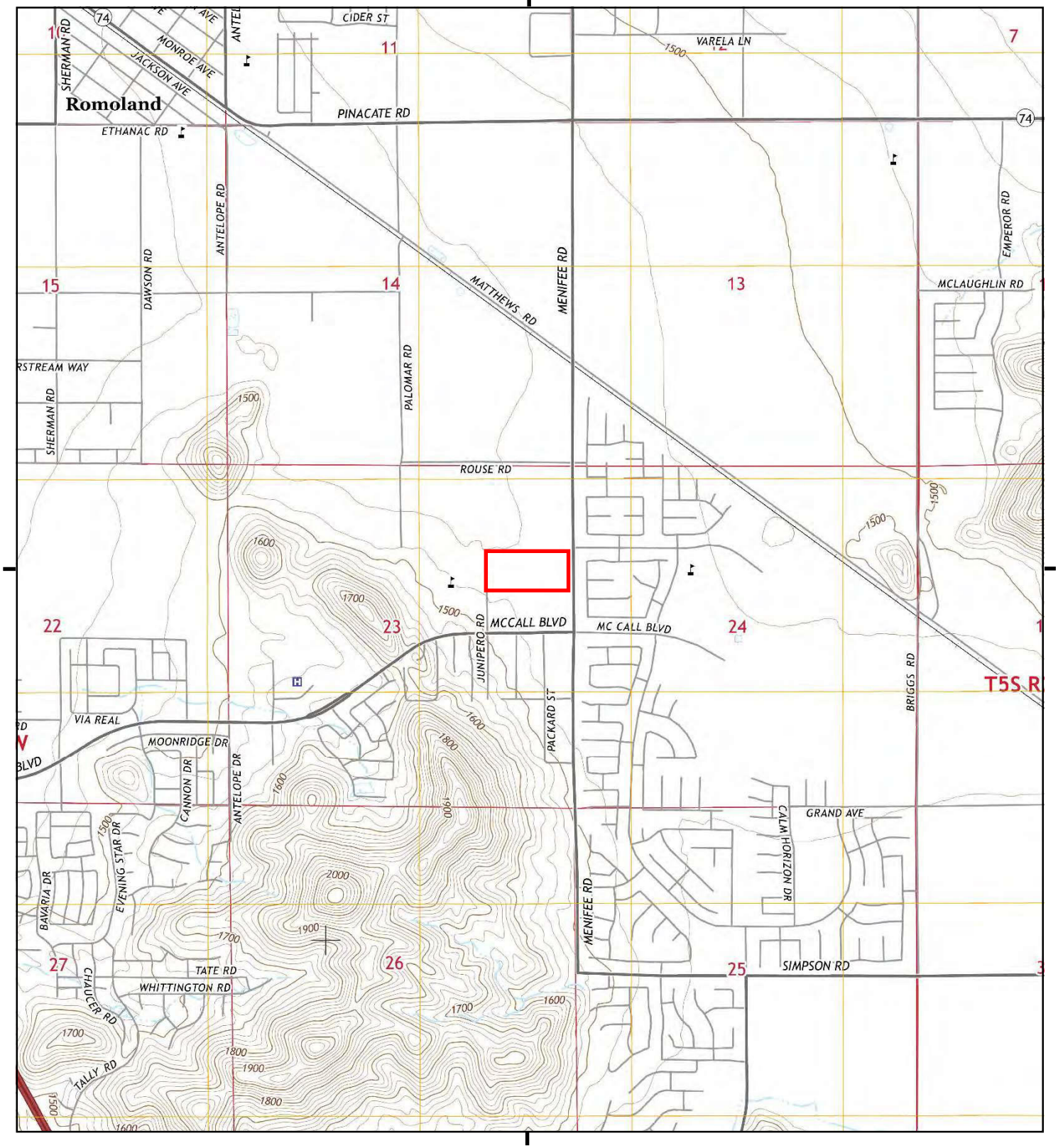
TP, Romoland, 2018, 7.5-minute

SITE NAME: Junipero Road and McCall Blvd
ADDRESS: Junipero Rd
Menifee, CA 92585
CLIENT: Lilburn Corporation

N

Historical Topo Map

2015



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SW S SE

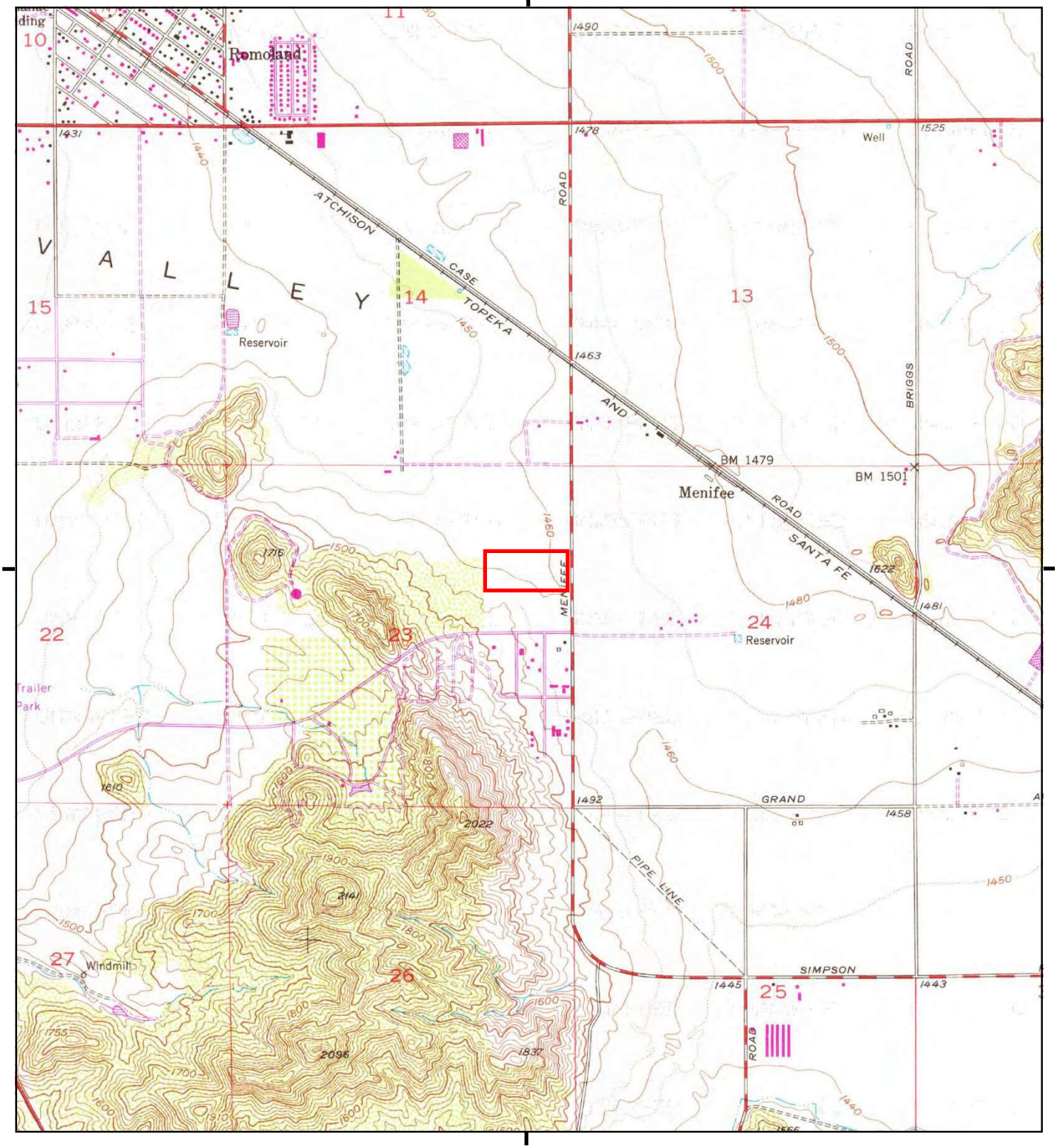
TP, Romoland, 2015, 7.5-minute

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ADDRESS: Junipero Rd
Menifee, CA 92585
CLIENT: Lilburn Corporation

N

Historical Topo Map

1979



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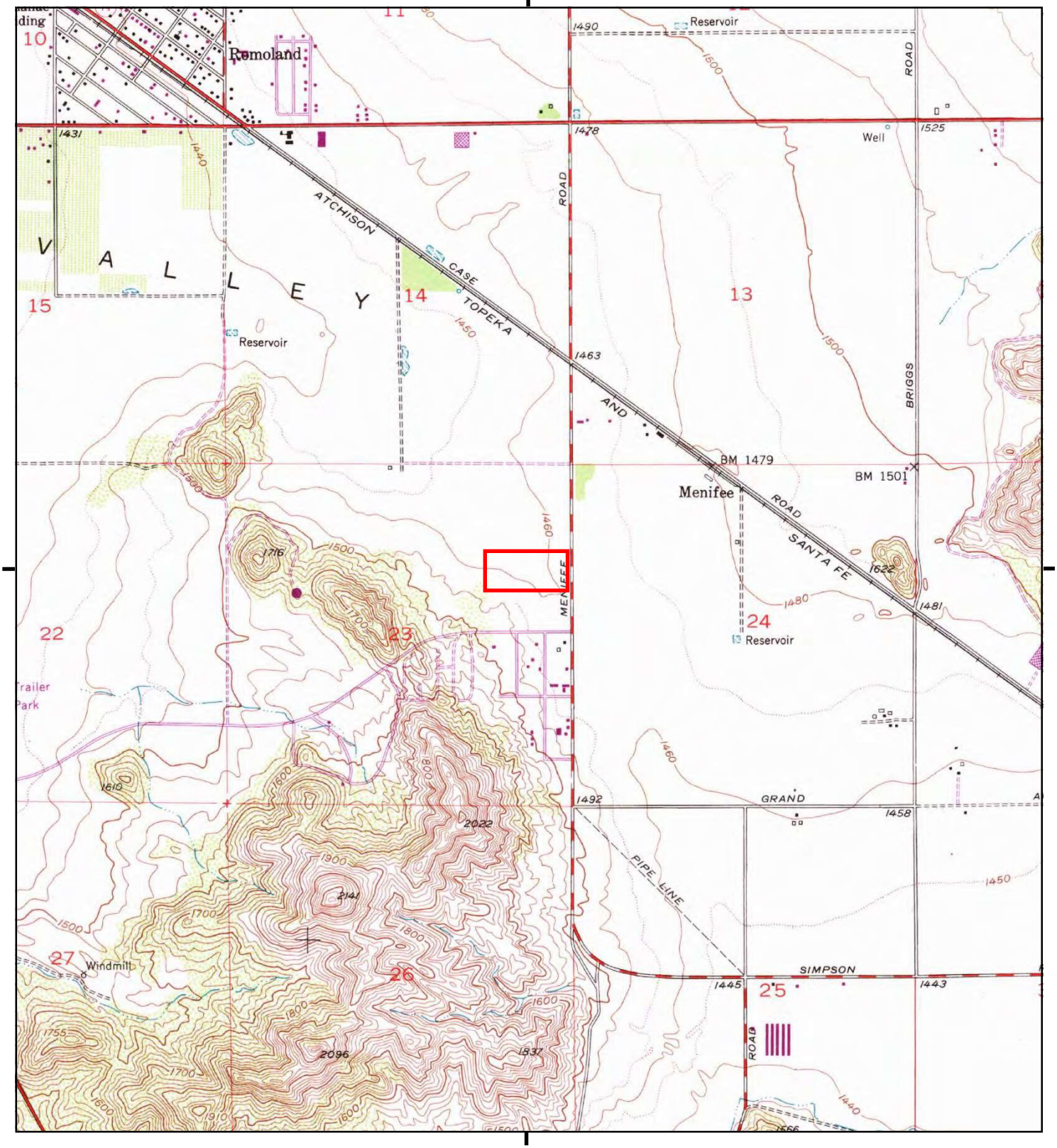
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SITE NAME: Junipero Road and McCall Blvd
ADDRESS: Junipero Rd
Menifee, CA 92585
CLIENT: Lilburn Corporation

N

Historical Topo Map

1973



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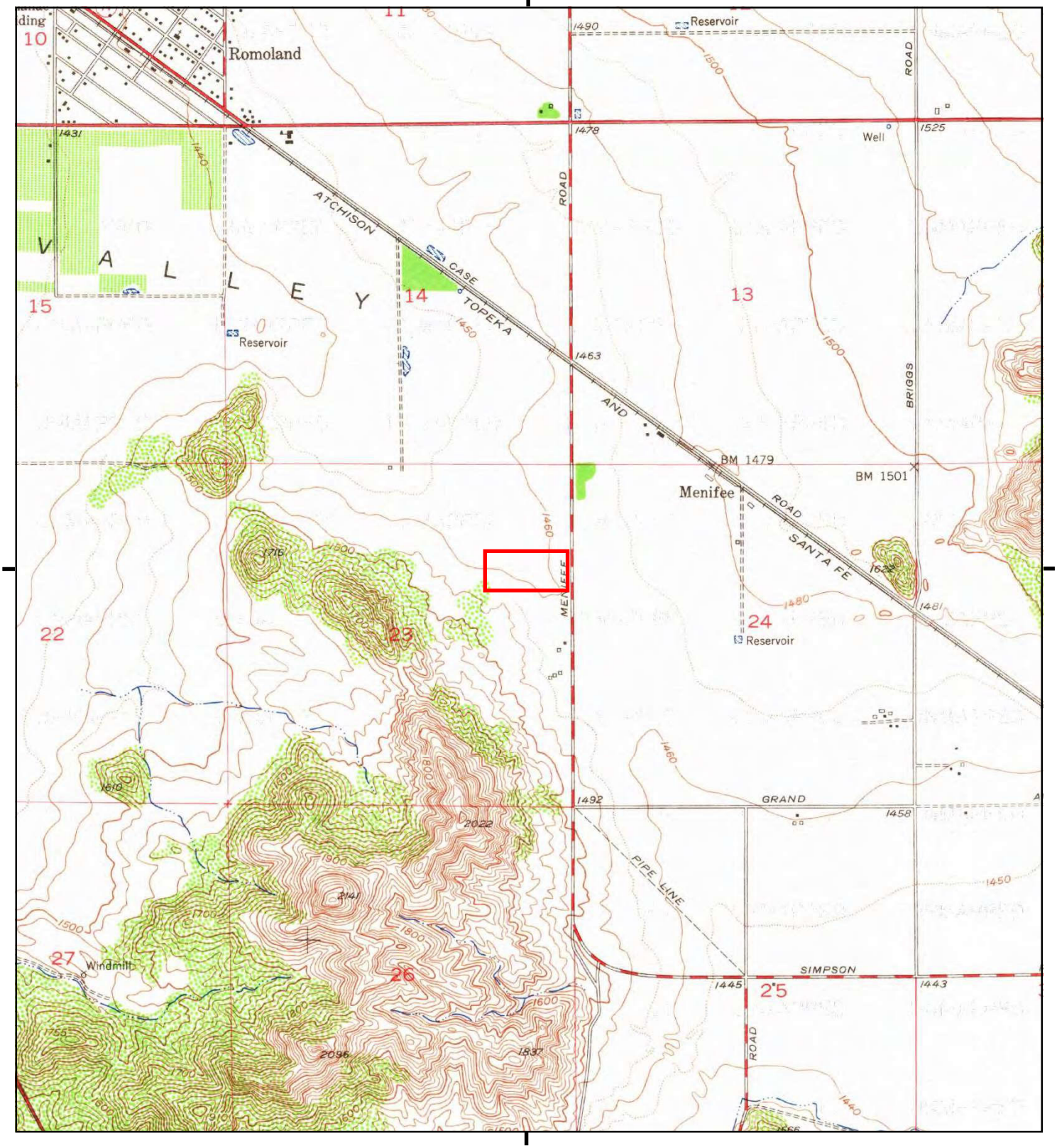
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ADDRESS: Junipero Rd
Menifee, CA 92585
CLIENT: Lilburn Corporation

N

Historical Topo Map

1953



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SW S SE

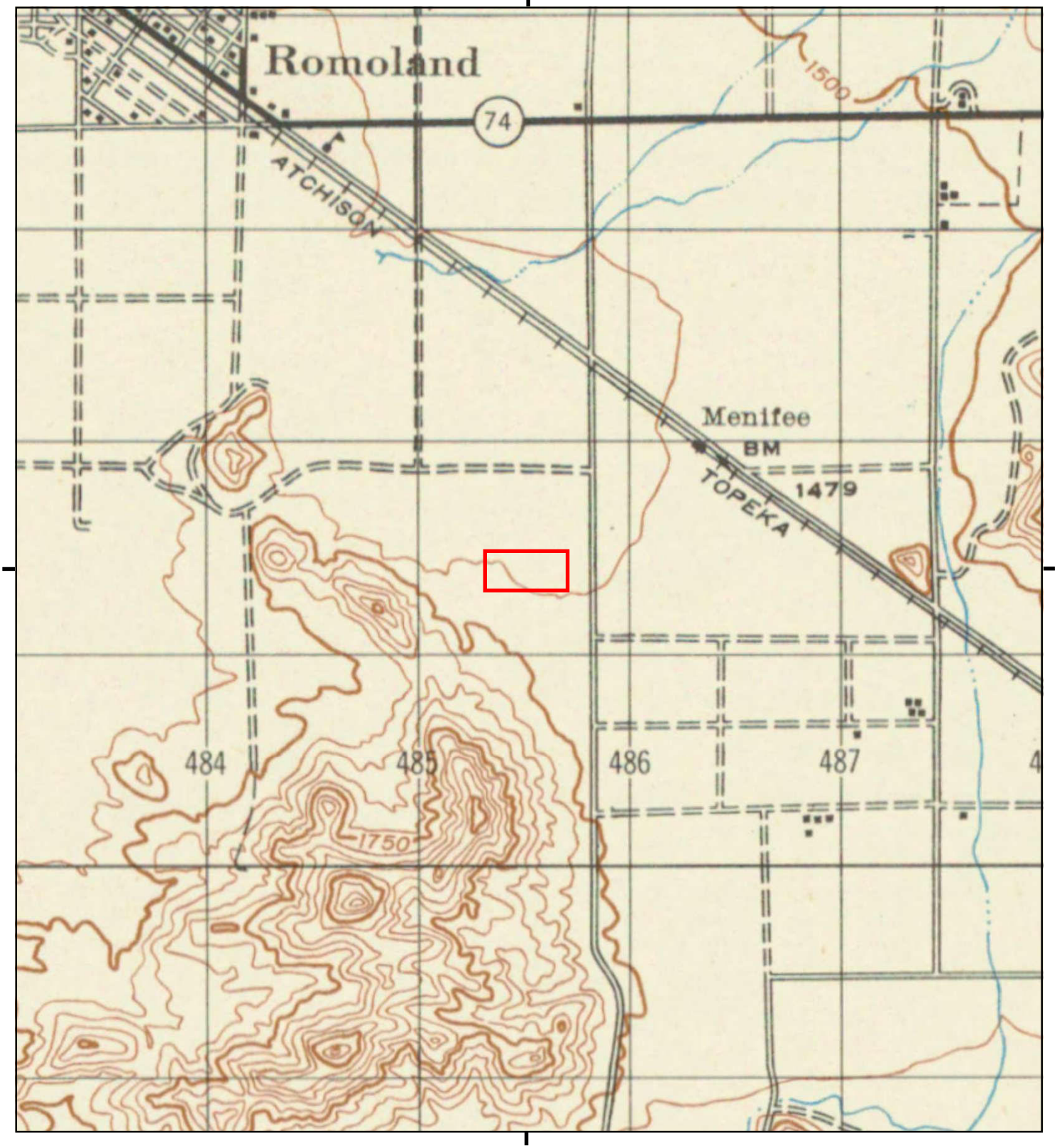
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SITE NAME: Junipero Road and McCall Blvd
ADDRESS: Junipero Rd
Menifee, CA 92585
CLIENT: Lilburn Corporation

N

Historical Topo Map

1947



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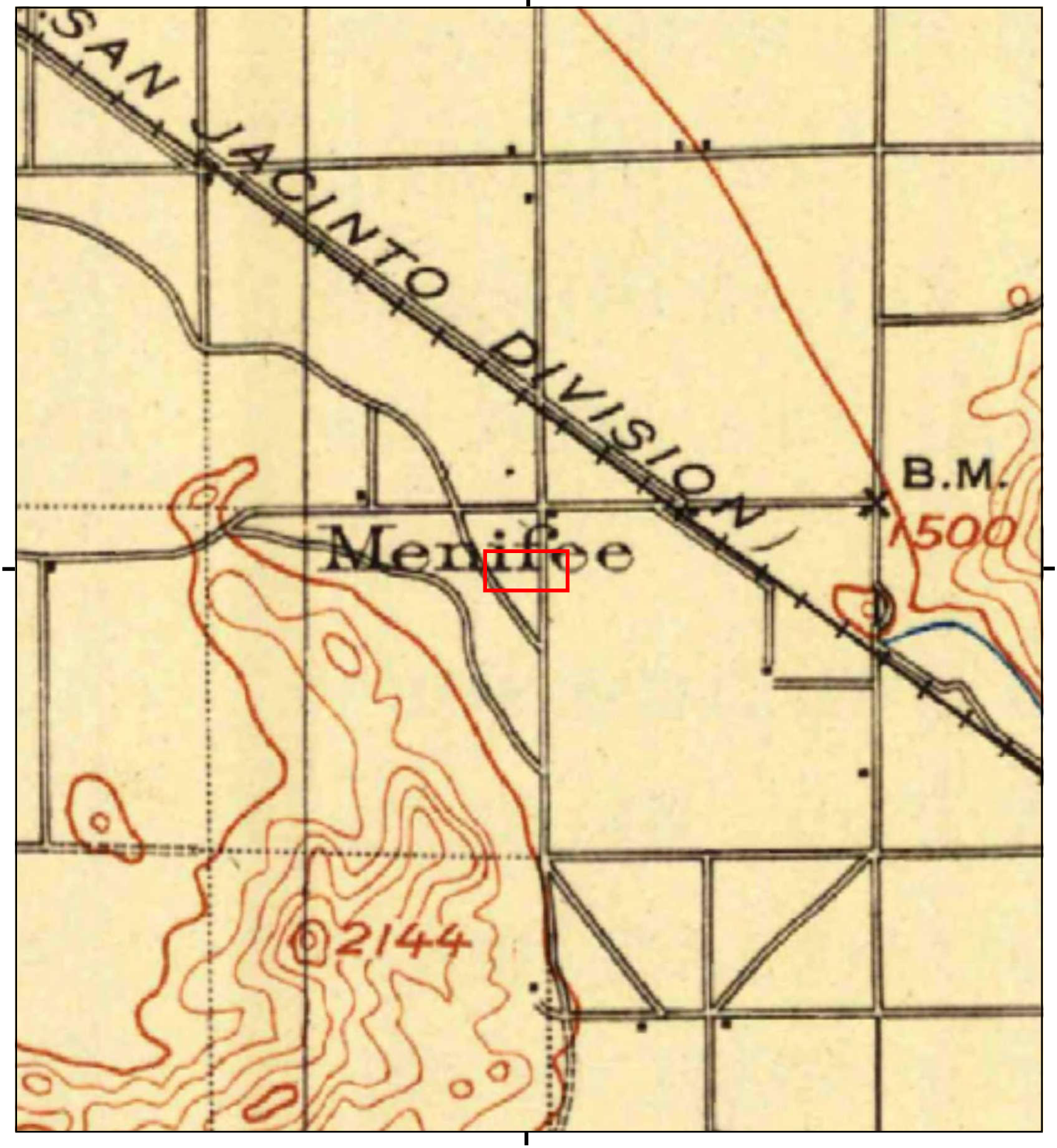
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W E
SW S SE

TP, MURRIETA, 1947, 15-minute

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ADDRESS: Junipero Rd
Menifee, CA 92585
CLIENT: Lilburn Corporation

N



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W E
SW S SE

TP, Elsinore, 1901, 30-minute

SITE NAME: Junipero Road and McCall Blvd
ADDRESS: Junipero Rd
Menifee, CA 92585
CLIENT: Lilburn Corporation

N

APPENDIX C
SITE PHOTOS

Phase I Environmental Site Assessment, Menifee Phase I/II Property

Subject Site Photos



Photo 1: Looking at the northwestern portion of the site from Junipero Road.



Photo 2: Looking south from the Site at E. Heritage Lake Drive.



Photo 3: Looking west from the eastern portion of the Site.



Photo 4: Looking west from Menifee Road across the subject Site.

Surrounding land uses



Photo 3: View west of subject site.



Photo 4: View east of the subject site.



Photo 5: View north of subject site.



Photo 6: View south of the subject site

APPENDIX D
LIMITED PHASE II
SUBSURFACE INVESTIGATION

LIMITED SITE INVESTIGATION

Menifee Development

Northeast Intersection of Junipero Road and McCall Boulevard

Menifee, Riverside County, California

July 18, 2022

Terracon Project No. 60227232



Prepared for:
Lilburn Corporation
San Bernardino, California

Prepared by:
Terracon Consultants, Inc.
Laguna Hills, California

terracon.com

Terracon

Environmental ■ Facilities ■ Geotechnical ■ Materials

Terracon

July 18, 2022

Ms. Cheryl Tubbs
Lilburn Corporation
1905 Business Center Drive
San Bernardino, CA 92408-3460

Telephone: (909) 890-1818
E-mail: cheryl@lilburncorp.com

Re: Proposal for Limited Site Investigation
Menifee Development
Northeast Intersection of Junipero Road and McCall Boulevard
Menifee, Riverside County, California
Terracon Project No. 60227232

Dear Ms. Tubbs:

Terracon Consultants, Inc. (Terracon) is pleased to submit the enclosed Limited Site Investigation report for the above referenced site. This assessment was performed in general accordance with Terracon's Proposal for Limited Site Investigation, dated June 8, 2022, and Terracon's Agreement for Services, executed June 9, 2022.

We appreciate the opportunity to perform these services for Lilburn Corporation . Please contact the undersigned at (949) 864-2078 if you have questions regarding the information provided in the report.

Sincerely,
Terracon Consultants, Inc.

Eric J. St. Michel
Staff Scientist

Todd G. McFarland, P.G., C.H.G.
Environmental Department Manager

Attachments

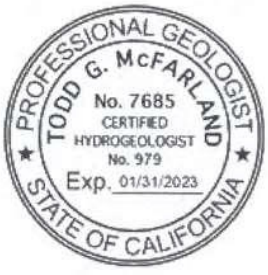


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- **1.2** Scope of Work 1
- **1.3** Standard of Care 2
- **1.4** Additional Scope Limitations 2
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APPENDICES

APPENDIX A – EXHIBITS
- Exhibit 1 – Topographic Map
- Exhibit 2 – Site Diagram

APPENDIX B – ANALYTICAL REPORT AND CHAIN-OF-CUSTODY

LIMITED SITE INVESTIGATION
MENIFEE DEVELOPMENT
NORTHEAST INTERSECTION OF JUNIPERO ROAD AND MCCALL BOULEVARD
MENIFEE, RIVERSIDE COUNTY, CALIFORNIA
Terracon Project No. 60227232
July 18, 2022

1.0 INTRODUCTION

1.1 Site Description

Site Name	Menifee Development
Site Location/Address	Northeast Intersection of Junipero Road and McCall Boulevard, Menifee, Riverside County, California
General Site Description	The property is identified as the Menifee development located northeast of the intersection of Junipero Road and McCall Boulevard in Menifee, Riverside County, California. Terracon understands that the site consists of approximately 17.67-acres of undeveloped land that was previously utilized for agricultural practices.

A topographic map and site diagram are included as **Exhibits 1** and **2** of **Appendix A**, respectively.

1.2 Scope of Work

Terracon conducted a Limited Site Investigation (LSI) at the site, northeast of the intersection of Junipero Road and McCall Boulevard in Menifee, Riverside County, California (the site). The scope of services was conducted to assess potential environmental impacts that may be present as a result of the below-listed recognized environmental conditions (RECs) and/or site concerns. Please note that Terracon did not conduct a Phase I Environmental Site Assessment (ESA) of the property, and that the scope of services was based solely on information provided in Lilburn Corporation's Phase I Environmental Site Assessment and Limited Phase II ESA dated December 2014, and additional information provided by the client.

REC/Site Concern	Description
Former agricultural use	Potential for improper use and/or application of pesticides and herbicides associated with the former agricultural uses.

The objective of the LSI was to assess the presence of chemicals commonly associated with the identified RECs and/or site concerns at concentrations above laboratory reporting limits in the on-site soil. Based on the surficial nature of the identified REC, groundwater and soil vapor sampling were not included in the proposed scope.

1.3 Standard of Care

Terracon's services were performed in a manner consistent with generally accepted practices of the profession undertaken in similar studies in the same geographical area during the same time period. Terracon makes no warranties, either express or implied, regarding the findings, conclusions, or recommendations. Please note that Terracon does not warrant the work of laboratories, regulatory agencies, or other third parties supplying information used in the preparation of the report. These LSI services were performed in accordance with the scope of work agreed with you, our client, as reflected in our proposal and were not restricted by ASTM E1903-19.

1.4 Additional Scope Limitations

Findings, conclusions, and recommendations resulting from these services are based upon information derived from the on-site activities and other services performed under this scope of work; such information is subject to change over time. Certain indicators of the presence of hazardous substances, petroleum products, or other constituents may have been latent, inaccessible, unobservable, nondetectable, or not present during these services, and we cannot represent that the site contains no hazardous substances, toxic materials, petroleum products, or other latent conditions beyond those identified during this LSI. Subsurface conditions may vary from those encountered at specific borings or wells or during other surveys, tests, assessments, investigations, or exploratory services; the data, interpretations, findings, and our recommendations are based solely upon data obtained at the time and within the scope of these services.

1.5 Reliance

This report has been prepared for the exclusive use of and reliance of Lilburn Corporation. Use or reliance by any other parties (except a governmental entity having jurisdiction over the site) is prohibited without the express written authorization of and reliance of Lilburn Corporation and Terracon. Any unauthorized distribution or reuse is at and reliance of Lilburn Corporation's sole risk. Notwithstanding the foregoing, reliance by authorized parties will be subject to the terms, conditions, and limitations stated in the proposal, LSI report, and Terracon's Terms and Conditions. The limitation of liability defined in the terms and conditions is the aggregate limit of Terracon's liability to and reliance of Lilburn Corporation unless otherwise agreed in writing.

2.0 FIELD ACTIVITIES

Terracon's field activities were conducted on June 17, 2022, by a staff geologist with oversight by a California-licensed Professional Geologist (P.G.) with Terracon. A site-specific health and safety plan was utilized by Terracon during field activities for all phases of this assessment.

2.1 Soil Borings and Soil Sampling

On June 17, 2022, Terracon advanced eighteen (18) shallow soil borings using a hand-auger to 0.5 feet below ground surface (bgs). The discrete samples were then composited by the laboratory at a ratio of 3:1, for a total of six (6) analytical samples. The approximate boring locations are shown on **Exhibit 2** of **Appendix A** and are summarized below.

advanced fourteen (14) shallow soil borings (B-1 through B-14) using a hand-auger to 0.5 feet below ground surface (bgs). The approximate boring locations are shown on **Exhibit 2** of **Appendix A** and are summarized below.

Table 2.1 – Soil Boring Summary

Sample ID	Composite Sample ID	Total Depth (feet bgs)	Soil Sample Depth* (feet bgs)	Sample Type	Assessment Area/REC
S-1A	COMP 3:1 (S-1A – S-1C)	0.5	0.5	Grab	Former agricultural use
S-1B					
S-1C					
S-2A	COMP 3:1 (S-2A – S-2C)	0.5	0.5	Grab	Former agricultural use
S-2B					
S-2C					
S-3A	COMP 3:1 (S-3A – S-3C)	0.5	0.5	Grab	Former agricultural use
S-3B					
S-3C					
S-4A	COMP 3:1 (S-4A – S-4C)	0.5	0.5	Grab	Former agricultural use
S-4B					
S-4C					
S-5A	COMP 3:1 (S-5A – S-5C)	0.5	0.5	Grab	Former agricultural use
S-5B					
S-5C					
S-6A	COMP 3:1 (S-6A – S-6C)	0.5	0.5	Grab	Former agricultural use
S-6B					
S-6C					

*Sample depths selected for analytical testing.

Terracon collected soil samples from the soil borings to observe soil lithology, color, moisture content, and staining, if present. The soils encountered generally consisted of dry to damp silty sand and sand to the maximum depth of exploration of 0.5 feet bgs. Indications of staining were not observed.

Terracon's soil sampling program included the collection of one soil sample from each boring. Terracon collected grab soil samples from the barrel of the hand-auger. Samples were retrieved from the sampler and placed in laboratory provided containers. The field crew used new nitrile gloves for each sample collection to prevent cross contamination. The samples were labeled, sealed, recorded on chain-of-custody forms and stored in a chilled ice chest pending delivery to the laboratory.

Reusable drilling and sampling equipment was cleaned using an Alconox® wash and two potable water rinses prior to the beginning of the project and before collecting each soil sample. Investigation derived waste (IDW) was not generated during this investigation.

3.0 LABORATORY ANALYTICAL METHODS

3.1 Soil

A total of eighteen (18) discrete soil samples were collected. The laboratory composited the discrete samples at a 3:1 ratio for laboratory analysis. The soil samples and completed chain-of-custody forms were relinquished to SunStar Laboratories Inc., in Lake Forest, California, a State-of-California certified laboratory for analysis. The selected soil samples were analyzed using standard Environmental Protection Agency (EPA) methods and included:

- organochlorine pesticides (OCPs) by EPA 8081A; and,
- arsenic by EPA 6010B.

4.0 DATA EVALUATION

Terracon screened the analytical data using the current residential and commercial Environmental Screening Levels (ESLs) published by San Francisco Bay Regional Water Quality Control Board (2019, Rev. 2). Arsenic data was additionally evaluated using California Department of Toxic Substances Control (DTSC), Determination of a Southern California Regional Background Arsenic Concentration in Soil. The detection of an analyte at a concentration above a screening level does not necessarily indicate an adverse impact to human health or the environment; however, an exceedance of a screening level may indicate that additional investigation is warranted.

4.1 Soil Analytical Results – OCPs and Arsenic

The soil analytical results for OCPs and arsenic were below the specified laboratory report limits and applicable screening limits, as summarized below.

Table 4.1 – Analytical Summary

	Arsenic (mg/kg)	OCPs[1] (mg/kg)	Toxaphene (mg/kg)
Reporting Limit	<5.0	<0.0050	<0.020
Screening Levels			
DTSC	12	--	--
Residential ESL	--	0.035[2]	0.51
Commercial ESL	--	0.15[2]	2.2

[1] Excludes toxaphene
[2] Aldrin ESL value, lowest screening level for OCPs

The soil analytical results are detailed in the laboratory analytical report and chain-of-custody forms, which are included in **Appendix B**.

5.0 FINDINGS AND CONCLUSIONS

The findings of this LSI are as follows:

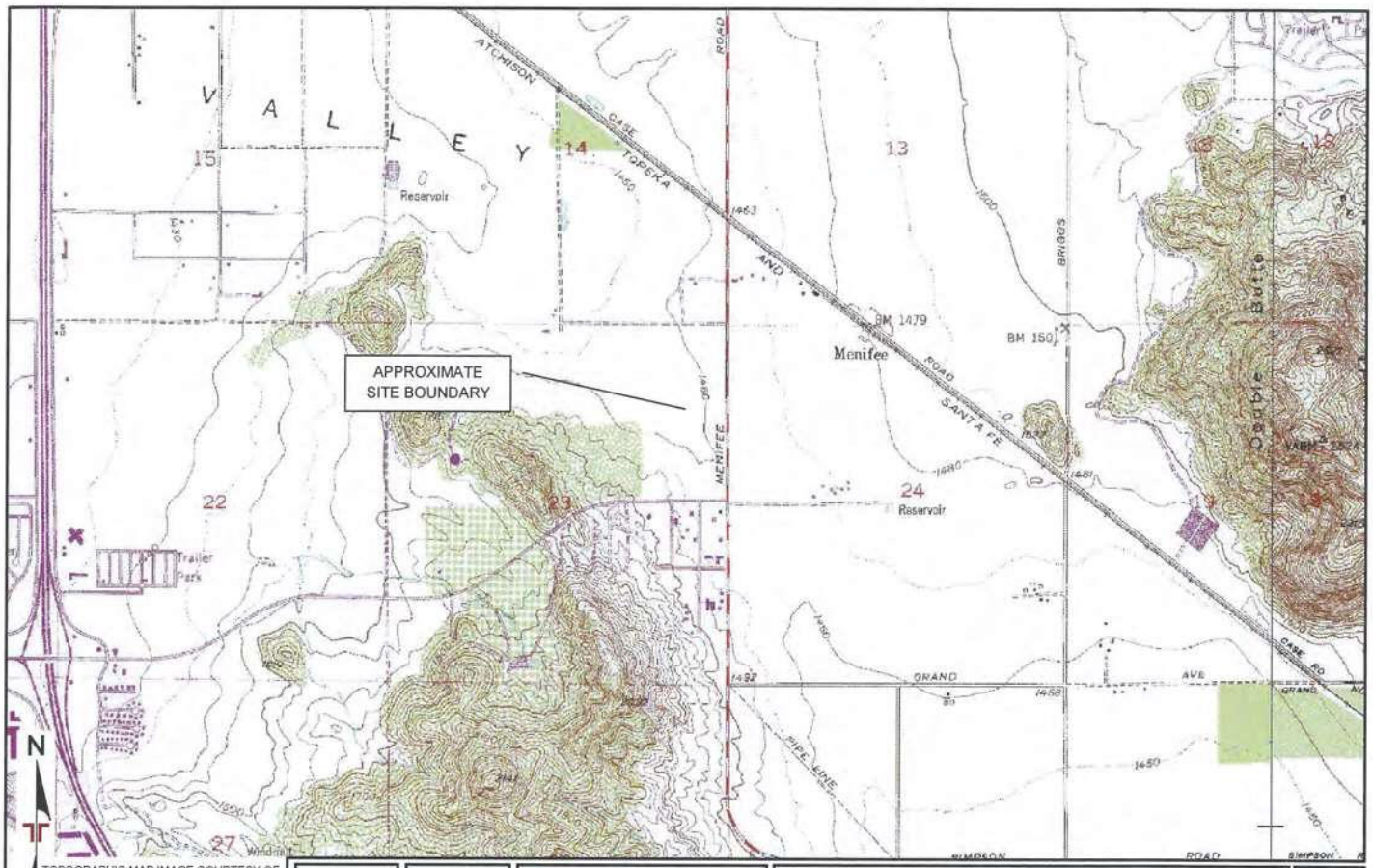
- No indications of staining or significant impacts based on field observations.
- Soil analysis for OCPs and arsenic were below the specified laboratory report limits and applicable screening limits.
- IDW was not generated for this investigation.
- Groundwater was not encountered to the total depth of 0.5 feet bgs.

Based on the field observations and laboratory data, evidence of significant impairment were not identified in the areas accessible and investigated, and at the time the investigation was conducted. Concentrations of detected analytes were below applicable residential and commercial screening levels.

6.0 RECOMMENDATIONS

Based on the findings of the LSI, no additional investigation appears warranted at this time.

APPENDIX A
EXHIBIT 1 – TOPOGRAPHIC MAP
EXHIBIT 2 – SITE DIAGRAM



Project Manager:	EJS
Drawn by:	EJS
Checked by:	TGM
Approved by:	TGM

Project No.	60227232
Scale:	1"=2,000'
File Name:	N/A
Date:	June 2022

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA 92653-1590

TOPOGRAPHIC MAP

Menifee Development
Northeast of the intersection of Junipero Road and McCall Boulevard
Menifee, Riverside County, California

Exhibit 1



AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Project Manager: EJS	Project No. 60227232
Drawn by: EJS	Scale: AS SHOWN
Checked by: TGM	File Name: N/A
Approved by: TGM	Date: July 2022

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA 92653-1590

SITE DIAGRAM

Menifee Development
Northeast Intersection of Junipero Road and McCall Blvd.
Menifee, Riverside County, California

Exhibit 2

APPENDIX B
ANALTICAL REPORT AND CHAIN-OF-CUSTODY

SunStar Laboratories, Inc.
PROVIDING QUALITY ANALYTICAL SERVICES NATIONWIDE

25712 Commercentre Drive
Lake Forest, California 92630
949.297.5020 Phone
949.297.5027 Fax

24 June 2022

Eric St. Michel
Terracon - Laguna Hills
23041 Avenida De La Carlota #350
Laguna Hills, CA 92653

RE: Manifee Development

Enclosed are the results of analyses for samples received by the laboratory on 06/17/22 14:23. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jeff Lee
Project Manager

SunStar Laboratories, Inc.
PROVIDING QUALITY ANALYTICAL SERVICES NATIONWIDE

25712 Commercentre Drive
Lake Forest, California 92630
949.297.5020 Phone
949.297.5027 Fax

Terracon - Laguna Hills	Project: Manifee Development	
23041 Avenida De La Carlota #350	Project Number: 60227232	**Reported:**
Laguna Hills CA, 92653	Project Manager: Eric St. Michel	06/24/22 16:58

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
COMP 3:1 (S-1A - S-1C)	T221733-19	Soil	06/17/22 08:55	06/17/22 14:23
COMP 3:1 (S-2A - S-2C)	T221733-20	Soil	06/17/22 09:25	06/17/22 14:23
COMP 3:1 (S-3A - S-3C)	T221733-21	Soil	06/17/22 09:50	06/17/22 14:23
COMP 3:1 (S-4A - S-4C)	T221733-22	Soil	06/17/22 10:10	06/17/22 14:23
COMP 3:1 (S-5A - S-5C)	T221733-23	Soil	06/17/22 10:40	06/17/22 14:23
COMP 3:1 (S-6A - S-6C)	T221733-24	Soil	06/17/22 11:00	06/17/22 14:23

SunStar Laboratories, Inc.

Jeff Lee, Project Manager

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Providing Quality Analytical Services Nationwide

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Lake Forest, California 92630
949.297.5020 Phone
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Terracon - Laguna Hills	Project: Manifee Development	
23041 Avenida De La Carlota #350	Project Number: 60227232	**Reported:**
Laguna Hills CA, 92653	Project Manager: Eric St. Michel	06/24/22 16:58

DETECTIONS SUMMARY

Sample ID: COMP 3:1 (S-1A - S-1C) **Laboratory ID:** T221733-19

No Results Detected

Sample ID: COMP 3:1 (S-2A - S-2C) **Laboratory ID:** T221733-20

No Results Detected

Sample ID: COMP 3:1 (S-3A - S-3C) **Laboratory ID:** T221733-21

No Results Detected

Sample ID: COMP 3:1 (S-4A - S-4C) **Laboratory ID:** T221733-22

No Results Detected

Sample ID: COMP 3:1 (S-5A - S-5C) **Laboratory ID:** T221733-23

No Results Detected

Sample ID: COMP 3:1 (S-6A - S-6C) **Laboratory ID:** T221733-24

No Results Detected

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Terracon - Laguna Hills	Project: Manifee Development	
23041 Avenida De La Carlota #350	Project Number: 60227232	**Reported:**
Laguna Hills CA, 92653	Project Manager: Eric St. Michel	06/24/22 16:58

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Terracon - Laguna Hills	Project: Manifee Development	
23041 Avenida De La Carlota #350	Project Number: 60227232	**Reported:**
Laguna Hills CA, 92653	Project Manager: Eric St. Michel	06/24/22 16:58

COMP 3:1 (S-1A - S-1C)

T221733-19 (Soil)

SunStar Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Metals by EPA 6010B									
Arsenic	ND	5.00	mg/kg	1	22F0296	06/17/22	06/24/22	EPA 6010b	
Organochlorine Pesticides by EPA Method 8081A									
alpha-BHC	ND	0.0050	mg/kg	1	22F0297	06/17/22	06/20/22	EPA 8081A	
gamma-BHC (Lindane)	ND	0.0050	"	"	"	"	"	"	
beta-BHC	ND	0.0050	"	"	"	"	"	"	
delta-BHC	ND	0.0050	"	"	"	"	"	"	
Heptachlor	ND	0.0050	"	"	"	"	"	"	
Aldrin	ND	0.0050	"	"	"	"	"	"	
Heptachlor epoxide	ND	0.0050	"	"	"	"	"	"	
gamma-Chlordane	ND	0.0050	"	"	"	"	"	"	
alpha-Chlordane	ND	0.0050	"	"	"	"	"	"	
Endosulfan I	ND	0.0050	"	"	"	"	"	"	
4,4'-DDE	ND	0.0050	"	"	"	"	"	"	
Dieldrin	ND	0.0050	"	"	"	"	"	"	
Endrin	ND	0.0050	"	"	"	"	"	"	
4,4'-DDD	ND	0.0050	"	"	"	"	"	"	
Endosulfan II	ND	0.0050	"	"	"	"	"	"	
4,4'-DDT	ND	0.0050	"	"	"	"	"	"	
Endrin aldehyde	ND	0.0050	"	"	"	"	"	"	
Endosulfan sulfate	ND	0.0050	"	"	"	"	"	"	
Methoxychlor	ND	0.0050	"	"	"	"	"	"	
Endrin ketone	ND	0.0050	"	"	"	"	"	"	
Toxaphene	ND	0.020	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*86.3 %*	*35-140*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*97.7 %*	*35-140*		"	"	"	"	

SunStar Laboratories, Inc.

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Terracon - Laguna Hills	Project: Manifee Development	
23041 Avenida De La Carlota #350	Project Number: 60227232	**Reported:**
Laguna Hills CA, 92653	Project Manager: Eric St. Michel	06/24/22 16:58

COMP 3:1 (S-2A - S-2C)

T221733-20 (Soil)

SunStar Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Metals by EPA 6010B									
Arsenic	ND	5.00	mg/kg	1	22F0296	06/17/22	06/24/22	EPA 6010b	
Organochlorine Pesticides by EPA Method 8081A									
alpha-BHC	ND	0.0050	mg/kg	1	22F0297	06/17/22	06/20/22	EPA 8081A	
gamma-BHC (Lindane)	ND	0.0050	"	"	"	"	"	"	
beta-BHC	ND	0.0050	"	"	"	"	"	"	
delta-BHC	ND	0.0050	"	"	"	"	"	"	
Heptachlor	ND	0.0050	"	"	"	"	"	"	
Aldrin	ND	0.0050	"	"	"	"	"	"	
Heptachlor epoxide	ND	0.0050	"	"	"	"	"	"	
gamma-Chlordane	ND	0.0050	"	"	"	"	"	"	
alpha-Chlordane	ND	0.0050	"	"	"	"	"	"	
Endosulfan I	ND	0.0050	"	"	"	"	"	"	
4,4'-DDE	ND	0.0050	"	"	"	"	"	"	
Dieldrin	ND	0.0050	"	"	"	"	"	"	
Endrin	ND	0.0050	"	"	"	"	"	"	
4,4'-DDD	ND	0.0050	"	"	"	"	"	"	
Endosulfan II	ND	0.0050	"	"	"	"	"	"	
4,4'-DDT	ND	0.0050	"	"	"	"	"	"	
Endrin aldehyde	ND	0.0050	"	"	"	"	"	"	
Endosulfan sulfate	ND	0.0050	"	"	"	"	"	"	
Methoxychlor	ND	0.0050	"	"	"	"	"	"	
Endrin ketone	ND	0.0050	"	"	"	"	"	"	
Toxaphene	ND	0.020	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*92.9 %*	*35-140*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*110 %*	*35-140*		"	"	"	"	

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23041 Avenida De La Carlota #350	Project Number: 60227232	**Reported:**
Laguna Hills CA, 92653	Project Manager: Eric St. Michel	06/24/22 16:58

COMP 3:1 (S-3A - S-3C)

T221733-21 (Soil)

SunStar Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Metals by EPA 6010B									
Arsenic	ND	5.00	mg/kg	1	22F0296	06/17/22	06/24/22	EPA 6010b	
Organochlorine Pesticides by EPA Method 8081A									
alpha-BHC	ND	0.0050	mg/kg	1	22F0297	06/17/22	06/20/22	EPA 8081A	
gamma-BHC (Lindane)	ND	0.0050	"	"	"	"	"	"	
beta-BHC	ND	0.0050	"	"	"	"	"	"	
delta-BHC	ND	0.0050	"	"	"	"	"	"	
Heptachlor	ND	0.0050	"	"	"	"	"	"	
Aldrin	ND	0.0050	"	"	"	"	"	"	
Heptachlor epoxide	ND	0.0050	"	"	"	"	"	"	
gamma-Chlordane	ND	0.0050	"	"	"	"	"	"	
alpha-Chlordane	ND	0.0050	"	"	"	"	"	"	
Endosulfan I	ND	0.0050	"	"	"	"	"	"	
4,4'-DDE	ND	0.0050	"	"	"	"	"	"	
Dieldrin	ND	0.0050	"	"	"	"	"	"	
Endrin	ND	0.0050	"	"	"	"	"	"	
4,4'-DDD	ND	0.0050	"	"	"	"	"	"	
Endosulfan II	ND	0.0050	"	"	"	"	"	"	
4,4'-DDT	ND	0.0050	"	"	"	"	"	"	
Endrin aldehyde	ND	0.0050	"	"	"	"	"	"	
Endosulfan sulfate	ND	0.0050	"	"	"	"	"	"	
Methoxychlor	ND	0.0050	"	"	"	"	"	"	
Endrin ketone	ND	0.0050	"	"	"	"	"	"	
Toxaphene	ND	0.020	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*90.3 %*	*35-140*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*111 %*	*35-140*		"	"	"	"	

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Terracon - Laguna Hills	Project: Manifee Development	
23041 Avenida De La Carlota #350	Project Number: 60227232	**Reported:**
Laguna Hills CA, 92653	Project Manager: Eric St. Michel	06/24/22 16:58

COMP 3:1 (S-4A - S-4C)

T221733-22 (Soil)

SunStar Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Metals by EPA 6010B									
Arsenic	ND	5.00	mg/kg	1	22F0296	06/17/22	06/24/22	EPA 6010b	
Organochlorine Pesticides by EPA Method 8081A									
alpha-BHC	ND	0.0050	mg/kg	1	22F0297	06/17/22	06/20/22	EPA 8081A	
gamma-BHC (Lindane)	ND	0.0050	"	"	"	"	"	"	
beta-BHC	ND	0.0050	"	"	"	"	"	"	
delta-BHC	ND	0.0050	"	"	"	"	"	"	
Heptachlor	ND	0.0050	"	"	"	"	"	"	
Aldrin	ND	0.0050	"	"	"	"	"	"	
Heptachlor epoxide	ND	0.0050	"	"	"	"	"	"	
gamma-Chlordane	ND	0.0050	"	"	"	"	"	"	
alpha-Chlordane	ND	0.0050	"	"	"	"	"	"	
Endosulfan I	ND	0.0050	"	"	"	"	"	"	
4,4'-DDE	ND	0.0050	"	"	"	"	"	"	
Dieldrin	ND	0.0050	"	"	"	"	"	"	
Endrin	ND	0.0050	"	"	"	"	"	"	
4,4'-DDD	ND	0.0050	"	"	"	"	"	"	
Endosulfan II	ND	0.0050	"	"	"	"	"	"	
4,4'-DDT	ND	0.0050	"	"	"	"	"	"	
Endrin aldehyde	ND	0.0050	"	"	"	"	"	"	
Endosulfan sulfate	ND	0.0050	"	"	"	"	"	"	
Methoxychlor	ND	0.0050	"	"	"	"	"	"	
Endrin ketone	ND	0.0050	"	"	"	"	"	"	
Toxaphene	ND	0.020	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*94.1 %*	*35-140*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*117 %*	*35-140*		"	"	"	"	

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Terracon - Laguna Hills	Project: Manifee Development	
23041 Avenida De La Carlota #350	Project Number: 60227232	**Reported:**
Laguna Hills CA, 92653	Project Manager: Eric St. Michel	06/24/22 16:58

COMP 3:1 (S-5A - S-5C)

T221733-23 (Soil)

SunStar Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Metals by EPA 6010B									
Arsenic	ND	5.00	mg/kg	1	22F0296	06/17/22	06/24/22	EPA 6010b	
Organochlorine Pesticides by EPA Method 8081A									
alpha-BHC	ND	0.0050	mg/kg	1	22F0297	06/17/22	06/20/22	EPA 8081A	
gamma-BHC (Lindane)	ND	0.0050	"	"	"	"	"	"	
beta-BHC	ND	0.0050	"	"	"	"	"	"	
delta-BHC	ND	0.0050	"	"	"	"	"	"	
Heptachlor	ND	0.0050	"	"	"	"	"	"	
Aldrin	ND	0.0050	"	"	"	"	"	"	
Heptachlor epoxide	ND	0.0050	"	"	"	"	"	"	
gamma-Chlordane	ND	0.0050	"	"	"	"	"	"	
alpha-Chlordane	ND	0.0050	"	"	"	"	"	"	
Endosulfan I	ND	0.0050	"	"	"	"	"	"	
4,4'-DDE	ND	0.0050	"	"	"	"	"	"	
Dieldrin	ND	0.0050	"	"	"	"	"	"	
Endrin	ND	0.0050	"	"	"	"	"	"	
4,4'-DDD	ND	0.0050	"	"	"	"	"	"	
Endosulfan II	ND	0.0050	"	"	"	"	"	"	
4,4'-DDT	ND	0.0050	"	"	"	"	"	"	
Endrin aldehyde	ND	0.0050	"	"	"	"	"	"	
Endosulfan sulfate	ND	0.0050	"	"	"	"	"	"	
Methoxychlor	ND	0.0050	"	"	"	"	"	"	
Endrin ketone	ND	0.0050	"	"	"	"	"	"	
Toxaphene	ND	0.020	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*97.3 %*	*35-140*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*116 %*	*35-140*		"	"	"	"	

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Terracon - Laguna Hills	Project: Manifee Development	
23041 Avenida De La Carlota #350	Project Number: 60227232	**Reported:**
Laguna Hills CA, 92653	Project Manager: Eric St. Michel	06/24/22 16:58

COMP 3:1 (S-6A - S-6C)

T221733-24 (Soil)

SunStar Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Metals by EPA 6010B									
Arsenic	ND	5.00	mg/kg	1	22F0296	06/17/22	06/24/22	EPA 6010b	
Organochlorine Pesticides by EPA Method 8081A									
alpha-BHC	ND	0.0050	mg/kg	1	22F0297	06/17/22	06/20/22	EPA 8081A	
gamma-BHC (Lindane)	ND	0.0050	"	"	"	"	"	"	
beta-BHC	ND	0.0050	"	"	"	"	"	"	
delta-BHC	ND	0.0050	"	"	"	"	"	"	
Heptachlor	ND	0.0050	"	"	"	"	"	"	
Aldrin	ND	0.0050	"	"	"	"	"	"	
Heptachlor epoxide	ND	0.0050	"	"	"	"	"	"	
gamma-Chlordane	ND	0.0050	"	"	"	"	"	"	
alpha-Chlordane	ND	0.0050	"	"	"	"	"	"	
Endosulfan I	ND	0.0050	"	"	"	"	"	"	
4,4'-DDE	ND	0.0050	"	"	"	"	"	"	
Dieldrin	ND	0.0050	"	"	"	"	"	"	
Endrin	ND	0.0050	"	"	"	"	"	"	
4,4'-DDD	ND	0.0050	"	"	"	"	"	"	
Endosulfan II	ND	0.0050	"	"	"	"	"	"	
4,4'-DDT	ND	0.0050	"	"	"	"	"	"	
Endrin aldehyde	ND	0.0050	"	"	"	"	"	"	
Endosulfan sulfate	ND	0.0050	"	"	"	"	"	"	
Methoxychlor	ND	0.0050	"	"	"	"	"	"	
Endrin ketone	ND	0.0050	"	"	"	"	"	"	
Toxaphene	ND	0.020	"	"	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*98.4 %*	*35-140*		"	"	"	"	
Surrogate: Decachlorobiphenyl		*122 %*	*35-140*		"	"	"	"	

SunStar Laboratories, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Jeff Lee, Project Manager

SunStar Laboratories, Inc.
PROVIDING QUALITY ANALYTICAL SERVICES NATIONWIDE

25712 Commercentre Drive
Lake Forest, California 92630
949.297.5020 Phone
949.297.5027 Fax

Terracon - Laguna Hills	Project: Manifee Development	
23041 Avenida De La Carlota #350	Project Number: 60227232	**Reported:**
Laguna Hills CA, 92653	Project Manager: Eric St. Michel	06/24/22 16:58

Metals by EPA 6010B - Quality Control

SunStar Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 22F0296 - EPA 3050B										
Blank (22F0296-BLK1)				Prepared: 06/17/22 Analyzed: 06/24/22						
Arsenic	ND	5.00	mg/kg							
LCS (22F0296-BS1)				Prepared: 06/17/22 Analyzed: 06/24/22						
Arsenic	93.6	5.00	mg/kg	100		93.6	75-125			
Matrix Spike (22F0296-MS1)	**Source: T221728-04**			Prepared: 06/17/22 Analyzed: 06/24/22						
Arsenic	89.4	5.00	mg/kg	100	11.7	77.6	75-125			
Matrix Spike Dup (22F0296-MSD1)	**Source: T221728-04**			Prepared: 06/17/22 Analyzed: 06/24/22						
Arsenic	96.8	5.00	mg/kg	100	11.7	85.1	75-125	8.01	20	

SunStar Laboratories, Inc.

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Jeff Lee, Project Manager

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Providing Quality Analytical Services Nationwide

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949.297.5027 Fax

Terracon - Laguna Hills	Project: Manifee Development	
23041 Avenida De La Carlota #350	Project Number: 60227232	**Reported:**
Laguna Hills CA, 92653	Project Manager: Eric St. Michel	06/24/22 16:58

Organochlorine Pesticides by EPA Method 8081A - Quality Control

SunStar Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 22F0297 - EPA 3550C ECD/GCMS										
Blank (22F0297-BLK1)				Prepared: 06/17/22 Analyzed: 06/20/22						
alpha-BHC	ND	0.0050	mg/kg							
gamma-BHC (Lindane)	ND	0.0050	"							
beta-BHC	ND	0.0050	"							
delta-BHC	ND	0.0050	"							
Heptachlor	ND	0.0050	"							
Aldrin	ND	0.0050	"							
Heptachlor epoxide	ND	0.0050	"							
gamma-Chlordane	ND	0.0050	"							
alpha-Chlordane	ND	0.0050	"							
Endosulfan I	ND	0.0050	"							
4,4'-DDE	ND	0.0050	"							
Dieldrin	ND	0.0050	"							
Endrin	ND	0.0050	"							
4,4'-DDD	ND	0.0050	"							
Endosulfan II	ND	0.0050	"							
4,4'-DDT	ND	0.0050	"							
Endrin aldehyde	ND	0.0050	"							
Endosulfan sulfate	ND	0.0050	"							
Methoxychlor	ND	0.0050	"							
Endrin ketone	ND	0.0050	"							
Toxaphene	ND	0.020	"							
Surrogate: Tetrachloro-meta-xylene	*0.00846*		"	*0.0100*		*84.6*	*35-140*			
Surrogate: Decachlorobiphenyl	*0.0107*		"	*0.0100*		*107*	*35-140*			
LCS (22F0297-BS1)				Prepared: 06/17/22 Analyzed: 06/20/22						
gamma-BHC (Lindane)	0.0312	0.0050	mg/kg	0.0404		77.1	40-120			
Heptachlor	0.0322	0.0050	"	0.0400		80.6	40-120			
Aldrin	0.0324	0.0050	"	0.0400		81.1	40-120			
Dieldrin	0.0326	0.0050	"	0.0402		81.0	40-120			
Endrin	0.0308	0.0050	"	0.0402		76.6	40-120			
4,4'-DDT	0.0238	0.0050	"	0.0404		58.9	33-147			
Surrogate: Tetrachloro-meta-xylene	*0.00914*		"	*0.0100*		*91.4*	*35-140*			
Surrogate: Decachlorobiphenyl	*0.0108*		"	*0.0100*		*108*	*35-140*			

SunStar Laboratories, Inc.

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Jeff Lee, Project Manager

SunStar Laboratories, Inc.
Providing Quality Analytical Services Nationwide

25712 Commercentre Drive
Lake Forest, California 92630
949.297.5020 Phone
949.297.5027 Fax

Terracon - Laguna Hills	Project: Manifee Development	
23041 Avenida De La Carlota #350	Project Number: 60227232	**Reported:**
Laguna Hills CA, 92653	Project Manager: Eric St. Michel	06/24/22 16:58

Organochlorine Pesticides by EPA Method 8081A - Quality Control

SunStar Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 22F0297 - EPA 3550C ECD/GCMS										
LCS Dup (22F0297-BSD1)				Prepared: 06/17/22 Analyzed: 06/20/22						
gamma-BHC (Lindane)	0.0316	0.0050	mg/kg	0.0404		78.3	40-120	1.44	30	
Heptachlor	0.0328	0.0050	"	0.0400		82.1	40-120	1.90	30	
Aldrin	0.0326	0.0050	"	0.0400		81.5	40-120	0.519	30	
Dieldrin	0.0337	0.0050	"	0.0402		83.7	40-120	3.28	30	
Endrin	0.0318	0.0050	"	0.0402		79.0	40-120	3.10	30	
4,4'-DDT	0.0243	0.0050	"	0.0404		60.1	33-147	2.10	30	
Surrogate: Tetrachloro-meta-xylene	*0.00910*		"	*0.0100*		*91.0*	*35-140*			
Surrogate: Decachlorobiphenyl	*0.0108*		"	*0.0100*		*108*	*35-140*			

SunStar Laboratories, Inc.

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Jeff Lee, Project Manager

SunStar Laboratories, Inc.
PROVIDING QUALITY ANALYTICAL SERVICES NATIONWIDE

25712 Commercentre Drive
Lake Forest, California 92630
949.297.5020 Phone
949.297.5027 Fax

Terracon - Laguna Hills	Project: Manifee Development	
23041 Avenida De La Carlota #350	Project Number: 60227232	**Reported:**
Laguna Hills CA, 92653	Project Manager: Eric St. Michel	06/24/22 16:58

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

SunStar Laboratories, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Jeff Lee, Project Manager

Chain of Custody Record

T221733

Laboratory: Sunstar
Address: -
Contact: -
Phone: -
PO/SO#:

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: Eric St. Michel	Site Contact:	Date:	COC No:
Terracon Consultants, Inc.	Tel/Fax:	Lab Contact:	Carrier:	1 of 2 COCs
23041 Avenida de la Carlota Ste 350	Analysis Turnaround Time			Sampler:
Laguna Hills, CA 92653	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 949-261-0051	TAT if different from Below _____			Walk-in Client:
	☒ Standard TAT			Lab Sampling:
Project Name: Manifee Development	☐ 72 Hours/3 Businss Days			
Site: Jumpero Road & McCall Blvd	☐ 48 Hours			Job / SDG No.:
PO# 6022727232	☐ 24 Hours			

Lab ID	Client Sample ID	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	8015 - TPH gasoline	8015 - TPH diesel	8015 - TPH oil	8015 - TPH carbon chain	8260 - BTEX & Oxygenates	8260 - VOCs (full scan)	6010/7470 - CAM 17 Metals	6010 - Total Lead	8270 - Semi VOCs	8082 - PCBs	8081A Pesticides, Organochlorine	8151 - Herbicides, Chlorinated	TO-3	TO-14	TO-15	1.1 DFA	6010B - Arsenic	Sample Specific Notes:
01	S-1A	6-17-22	0855	G	Soil	6oz Jar																			
02	S-1B		0905																						Lab Composite
03	S-1C		0915																						
04	S-2A		0925																						
05	S-2B		0935																						Lab Composite
06	S-2C		0940																						
07	S-3A		0950																						
08	S-3B		0955																						Lab Composite
09	S-3C		1000																						
~~10~~																									

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

- Lab Composite (6) six samples to Run

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: _____ Corr'd: _____ | Therm ID No.: _____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	Terracon	6-17-22 14:23		Sun Star Lab	6/17/22 14:23
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Ver dated 3/23/2022

5.7°C

Chain of Custody Record

T221733

Laboratory: SunStar
Address: -
Contact: -
Phone: -
PO/SO#:

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: Eric St Michel	Site Contact:	Date:	COC No:
Terracon Consultants, Inc.	Tel/Fax:	Lab Contact:	Carrier:	2 of 2 COCs
23041 Avenida de la Carlota Ste 350	Analysis Turnaround Time			Sampler:
Laguna Hills, CA 92653	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 949-261-0051	TAT if different from Below ____			Walk-in Client:
	☒ Standard TAT			Lab Sampling:
Project Name: Manifest Development	☐ 72 Hours/3 Business Days			Job / SDG No.:
Site: Juniper Rd & McCall Blvd	☐ 48 Hours			
PO# 60227232	☐ 24 Hours			

Lab ID	Client Sample ID	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	8015 - TPH gasoline	8015 - TPH diesel	8015 - TPH oil	8015 - TPH carbon chain	8260 - BTEX & Oxygenates	8260 - VOCs (full scan)	6010/7470 - CAM 17 Metals	6010 - Total Lead	8270 - Semi VOCs	8082 - PCBs	8081A Pesticides, Organochlorine	8151 - Herbicides, Chlorinated	TO-3	TO-14	TO-15	1.1 DFA	6010B - Arsenic	Sample Specific Notes:
10	S-4A	6-17-22	1010	G	Soil	6 cont.																				
11	S-4B		1020																							Lab Composite
12	S-4C		1025																							
13	S-5A		1040																							
14	S-5B		1045																							Lab Composite
15	S-5C		1055																							
16	S-6A		1100																							
17	S-6B		1105																							Lab Composite
18	S-6C		1111																							

Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4=HNO3, 5=NaOH, 6= Other

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

☐ Return to Client ☐ Disposal by Lab ☐ Archive for ____ Months

Special Instructions/QC Requirements & Comments:

-Lab Composite (6) Six Samples to Run

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:	Cooler Temp. (°C): Obs'd: ____ Corr'd: ____	Therm ID No.: ____
Relinquished by:	Company: Terracon	Date/Time: 6-17-22 / 14:23	Received by:	Company: SunStar Labs	Date/Time: 6/17/22 14:23
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Ver dated 3/23/2022

5.7°c

SunStar Laboratories, Inc.
Providing Quality Analytical Services Nationwide

Rev. 02 Date 07/19
Receiving Form 001

SAMPLE RECEIVING REVIEW SHEET

Batch/Work Order #: T22733

Client Name: Terracon Project: Manifee Developement

Delivered by: ☒ Client ☐ SunStar Courier ☐ GLS ☐ FedEx ☐ UPS

If Courier, Received by: Date/Time Courier Received:

Lab Received by: Paul Date/Time Lab Received: 6.17.22 1423

Total number of coolers received: 1 Thermometer ID: SC-1 Calibration due: 8/24/22

Temperature: Cooler #1 5.6	°C +/- the CF (+0.1 °C) = 5.7	°C corrected temperature	
Temperature: Cooler #2	°C +/- the CF (+0.1 °C) =	°C corrected temperature	
Temperature: Cooler #3	°C +/- the CF (+0.1 °C) =	°C corrected temperature	
Temperature criteria = ≤ 6°C (no frozen containers)	Within criteria?	☒ Yes ☐ No ☐ N/A	
If NO:			
Samples received on ice?	☐ Yes	☐ No → **Complete Non-Conformance Sheet**	
If on ice, samples received same day collected?	☐ Yes → Acceptable	☐ No → **Complete Non-Conformance Sheet**	

Custody seals intact on cooler/sample	☐ Yes	☐ No*	☒ N/A
Sample containers intact	☒ Yes	☐ No*	
Sample labels match Chain of Custody IDs	☒ Yes	☐ No*	
Total number of containers received match COC	☒ Yes	☐ No*	
Proper containers received for analyses requested on COC	☒ Yes	☐ No*	
Proper preservative indicated on COC/containers for analyses requested	☐ Yes	☐ No*	☒ N/A
Complete shipment received in good condition with correct temperatures, containers, labels, volumes preservatives and within method specified holding times	☒ **Yes**	☐ **No***	

* Complete Non-Conformance Receiving Sheet if checked

Cooler/Sample Review - Initials and date: AO 6.17.22

Comments:

(949) 297-5020 ■ www.sunstarlabs.com ■ 25712 Commercentre Drive ■ Lake Forest, CA 92630

WORK ORDER

Printed: 6/20/2022 10:11:26AM

T221733

SunStar Laboratories, Inc.

Client: Terracon - Laguna Hills	**Project Manager:** Jeff Lee
Project: Manifee Development	**Project Number:** 60227232

Report To:
Terracon - Laguna Hills
Eric St. Michel
23041 Avenida De La Carlota #350
Laguna Hills, CA 92653
Phone: (949) 261-0051
Fax: (949) 660-9732

Invoice To:
Terracon - Laguna Hills
Eric St. Michel
23041 Avenida De La Carlota #350
Laguna Hills, CA 92653
Phone :(949) 261-0051
Fax: (949) 660-9732

Date Due:	06/24/22 17:00 (5 day TAT)		
Received By:	Paul Berner	Date Received:	06/17/22 14:23
Logged In By:	Elizabeth Sprowell	Date Logged In:	06/17/22 17:10

Samples Received at: **5.7°C**

No	Yes	No
Yes	No	No
Yes	No	No
No	No	No

Analysis	Due	TAT	Expires	Comments

T221733-01 S-1A [Soil] Sampled 06/17/22 08:55 (GMT-08:00) Pacific Time (US &

[NO ANALYSES]

T221733-02 S-1 B [Soil] Sampled 06/17/22 09:05 (GMT-08:00) Pacific Time (US &

[NO ANALYSES]

T221733-03 S-1 C [Soil] Sampled 06/17/22 09:15 (GMT-08:00) Pacific Time (US &

[NO ANALYSES]

T221733-04 S-2 A [Soil] Sampled 06/17/22 09:25 (GMT-08:00) Pacific Time (US &

[NO ANALYSES]

T221733-05 S-2 B [Soil] Sampled 06/17/22 09:35 (GMT-08:00) Pacific Time (US &

[NO ANALYSES]

T221733-06 S-2 C [Soil] Sampled 06/17/22 09:40 (GMT-08:00) Pacific Time (US &

[NO ANALYSES]

T221733-07 S-3 A [Soil] Sampled 06/17/22 09:50 (GMT-08:00) Pacific Time (US &

[NO ANALYSES]

T221733

SunStar Laboratories, Inc.

Client: Terracon - Laguna Hills	Project Manager: Jeff Lee
Project: Manifee Development	Project Number: 60227232

Analysis	Due	TAT	Expires	Comments

T221733-08 S-3 B [Soil] Sampled 06/17/22 09:55 (GMT-08:00) Pacific Time (US
&

[NO ANALYSES]

T221733-09 S-3 C [Soil] Sampled 06/17/22 10:00 (GMT-08:00) Pacific Time (US
&

[NO ANALYSES]

T221733-10 S-4 A [Soil] Sampled 06/17/22 10:10 (GMT-08:00) Pacific Time (US
&

[NO ANALYSES]

T221733-11 S-4 B [Soil] Sampled 06/17/22 10:20 (GMT-08:00) Pacific Time (US
&

[NO ANALYSES]

T221733-12 S-4 C [Soil] Sampled 06/17/22 10:25 (GMT-08:00) Pacific Time (US
&

[NO ANALYSES]

T221733-13 S-5 A [Soil] Sampled 06/17/22 10:40 (GMT-08:00) Pacific Time (US
&

[NO ANALYSES]

T221733-14 S-5 B [Soil] Sampled 06/17/22 10:45 (GMT-08:00) Pacific Time (US
&

[NO ANALYSES]

T221733-15 S-5 C [Soil] Sampled 06/17/22 10:55 (GMT-08:00) Pacific Time (US
&

[NO ANALYSES]

T221733-16 S-6 A [Soil] Sampled 06/17/22 11:00 (GMT-08:00) Pacific Time (US
&

[NO ANALYSES]

T221733-17 S-6 B [Soil] Sampled 06/17/22 11:05 (GMT-08:00) Pacific Time (US
&

[NO ANALYSES]

T221733-18 S-6 C [Soil] Sampled 06/17/22 11:11 (GMT-08:00) Pacific Time (US
&

[NO ANALYSES]

T221733

SunStar Laboratories, Inc.

Client:	**Terracon - Laguna Hills**	**Project Manager:**	**Jeff Lee**
Project:	**Manifee Development**	**Project Number:**	**60227232**

Analysis	Due	TAT	Expires	Comments
T221733-19 COMP 3:1 (S-1A - S-1C) [Soil] Sampled 06/17/22 08:55 (GMT-08:00) Pacific Time (US &				**COMP- 4:1 S1A, S1B, S1C**
8081 Pesticides	06/24/22 15:00	5	07/01/22 08:55	
6010 Individual Metals	06/24/22 15:00	5	12/14/22 08:55	+As
T221733-20 COMP 3:1 (S-2A - S-2C) [Soil] Sampled 06/17/22 09:25 (GMT-08:00) Pacific Time (US &				**COMP- 4:1 S2A, S2B, S2C**
8081 Pesticides	06/24/22 15:00	5	07/01/22 09:25	
6010 Individual Metals	06/24/22 15:00	5	12/14/22 09:25	+As
T221733-21 COMP 3:1 (S-3A - S-3C) [Soil] Sampled 06/17/22 09:50 (GMT-08:00) Pacific Time (US &				**COMP- 4:1 S3A, S3B, S3C**
8081 Pesticides	06/24/22 15:00	5	07/01/22 09:50	
6010 Individual Metals	06/24/22 15:00	5	12/14/22 09:50	+As
T221733-22 COMP 3:1 (S-4A - S-4C) [Soil] Sampled 06/17/22 10:10 (GMT-08:00) Pacific Time (US &				**COMP- 4:1 S4A, S4B, S4C**
8081 Pesticides	06/24/22 15:00	5	07/01/22 10:10	
6010 Individual Metals	06/24/22 15:00	5	12/14/22 10:10	+As
T221733-23 COMP 3:1 (S-5A - S-5C) [Soil] Sampled 06/17/22 10:40 (GMT-08:00) Pacific Time (US &				**COMP- 4:1 S5A, S5B, S5C**
8081 Pesticides	06/24/22 15:00	5	07/01/22 10:40	
6010 Individual Metals	06/24/22 15:00	5	12/14/22 10:40	+As
T221733-24 COMP 3:1 (S-6A - S-6C) [Soil] Sampled 06/17/22 11:00 (GMT-08:00) Pacific Time (US &				**COMP- 4:1 S6A, S6B, S6C**
8081 Pesticides	06/24/22 15:00	5	07/01/22 11:00	
6010 Individual Metals	06/24/22 15:00	5	12/14/22 11:00	+As

Reviewed By

Date

APPENDIX E
ENVIRONMENTAL DATA RESSOURCES INC. REPORT

Junipero Road and McCall Blvd
Junipero Rd
Menifee, CA 92585

Inquiry Number: 7013948.2s
June 09, 2022

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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GEOCHECK ADDENDUM

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E1527-21), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

JUNIPERO RD
MENIFEE, CA 92585

COORDINATES

Latitude (North):	33.7240790 - 33ˆ 43' 26.68''
Longitude (West):	117.1562410 - 117ˆ 9' 22.46''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	485524.7
UTM Y (Meters):	3731380.5
Elevation:	1461 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	12015913 ROMOLAND, CA
Version Date:	2018

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20140530
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
JUNIPERO RD
MENIFEE, CA 92585

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
1	MENIFEE VALLEY RANCH	MCCALL BOULEVARD/MEN	ENVIROSTOR, SCH	Higher	659, 0.125, SE
2	MCCALL MESA K-8 SCHO	MCCALL BOULEVARD/JUN	ENVIROSTOR, SCH	Higher	661, 0.125, SSW
3	ELEMENTARY SCHOOL #1	CHAMBERS AVENUE/ANTE	ENVIROSTOR, SCH	Higher	4498, 0.852, WSW
4	PROPOSED ELEMENTARY	ROUSE ROAD/SHERMAN R	ENVIROSTOR, SCH	Higher	5193, 0.984, West

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Lists of Federal NPL (Superfund) sites

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Lists of Federal Delisted NPL sites

Delisted NPL ---------- National Priority List Deletions

Lists of Federal sites subject to CERCLA removals and CERCLA orders

FEDERAL FACILITY ---------- Federal Facility Site Information listing
SEMS ---------- Superfund Enterprise Management System

Lists of Federal CERCLA sites with NFRAP

SEMS-ARCHIVE ---------- Superfund Enterprise Management System Archive

Lists of Federal RCRA facilities undergoing Corrective Action

CORRACTS ---------- Corrective Action Report

Lists of Federal RCRA TSD facilities

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

Lists of Federal RCRA generators

RCRA-LQG ---------- RCRA - Large Quantity Generators
RCRA-SQG ---------- RCRA - Small Quantity Generators
RCRA-VSQG ---------- RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

Federal institutional controls / engineering controls registries

LUCIS ---------- Land Use Control Information System

US ENG CONTROLS Engineering Controls Sites List
US INST CONTROLS Institutional Controls Sites List

Federal ERNS list

ERNS Emergency Response Notification System

Lists of state- and tribal (Superfund) equivalent sites

RESPONSE State Response Sites

Lists of state and tribal landfills and solid waste disposal facilities

SWF/LF Solid Waste Information System

Lists of state and tribal leaking storage tanks

LUST Geotracker's Leaking Underground Fuel Tank Report
INDIAN LUST Leaking Underground Storage Tanks on Indian Land
CPS-SLIC Statewide SLIC Cases

Lists of state and tribal registered storage tanks

FEMA UST Underground Storage Tank Listing
UST Active UST Facilities
AST Aboveground Petroleum Storage Tank Facilities
INDIAN UST Underground Storage Tanks on Indian Land

Lists of state and tribal voluntary cleanup sites

VCP Voluntary Cleanup Program Properties
INDIAN VCP Voluntary Cleanup Priority Listing

Lists of state and tribal brownfield sites

BROWNFIELDS Considered Brownfieds Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT Waste Management Unit Database
SWRCY Recycler Database
HAULERS Registered Waste Tire Haulers Listing
INDIAN ODI Report on the Status of Open Dumps on Indian Lands
ODI Open Dump Inventory
DEBRIS REGION 9 Torres Martinez Reservation Illegal Dump Site Locations
IHS OPEN DUMPS Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL Delisted National Clandestine Laboratory Register

HIST Cal-Sites	Historical Calsites Database
CDL	Clandestine Drug Labs
Toxic Pits	Toxic Pits Cleanup Act Sites
CERS HAZ WASTE	CERS HAZ WASTE
US CDL	National Clandestine Laboratory Register
AQUEOUS FOAM	Former Fire Training Facility Assessments Listing
PFAS	PFAS Contamination Site Location Listing

Local Lists of Registered Storage Tanks

SWEEPS UST	SWEEPS UST Listing
HIST UST	Hazardous Substance Storage Container Database
CA FID UST	Facility Inventory Database
CERS TANKS	California Environmental Reporting System (CERS) Tanks

Local Land Records

LIENS	Environmental Liens Listing
LIENS 2	CERCLA Lien Information
DEED	Deed Restriction Listing

Records of Emergency Release Reports

HMIRS	Hazardous Materials Information Reporting System
CHMIRS	California Hazardous Material Incident Report System
LDS	Land Disposal Sites Listing
MCS	Military Cleanup Sites Listing
SPILLS 90	SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR	RCRA - Non Generators / No Longer Regulated
FUDS	Formerly Used Defense Sites
DOD	Department of Defense Sites
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR	Financial Assurance Information
EPA WATCH LIST	EPA WATCH LIST
2020 COR ACTION	2020 Corrective Action Program List
TSCA	Toxic Substances Control Act
TRIS	Toxic Chemical Release Inventory System
SSTS	Section 7 Tracking Systems
ROD	Records Of Decision
RMP	Risk Management Plans
RAATS	RCRA Administrative Action Tracking System
PRP	Potentially Responsible Parties
PADS	PCB Activity Database System
ICIS	Integrated Compliance Information System
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS	Material Licensing Tracking System
COAL ASH DOE	Steam-Electric Plant Operation Data
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER	PCB Transformer Registration Database
RADINFO	Radiation Information Database
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing

DOT OPS Incident and Accident Data
CONSENT Superfund (CERCLA) Consent Decrees
INDIAN RESERV Indian Reservations
FUSRAP Formerly Utilized Sites Remedial Action Program
UMTRA Uranium Mill Tailings Sites
LEAD SMELTERS Lead Smelter Sites
US AIRS Aerometric Information Retrieval System Facility Subsystem
US MINES Mines Master Index File
ABANDONED MINES Abandoned Mines
FINDS Facility Index System/Facility Registry System
DOCKET HWC Hazardous Waste Compliance Docket Listing
ECHO Enforcement & Compliance History Information
UXO Unexploded Ordnance Sites
FUELS PROGRAM EPA Fuels Program Registered Listing
CA BOND EXP. PLAN Bond Expenditure Plan
Cortese "Cortese" Hazardous Waste & Substances Sites List
CUPA Listings CUPA Resources List
DRYCLEANERS Cleaner Facilities
EMI Emissions Inventory Data
ENF Enforcement Action Listing
Financial Assurance Financial Assurance Information Listing
HAZNET Facility and Manifest Data
ICE ICE
HIST CORTESE Hazardous Waste & Substance Site List
HWP EnviroStor Permitted Facilities Listing
HWT Registered Hazardous Waste Transporter Database
MINES Mines Site Location Listing
MWMP Medical Waste Management Program Listing
NPDES NPDES Permits Listing
PEST LIC Pesticide Regulation Licenses Listing
PROC Certified Processors Database
Notify 65 Proposition 65 Records
UIC UIC Listing
UIC GEO UIC GEO (GEOTRACKER)
WASTEWATER PITS Oil Wastewater Pits Listing
WDS Waste Discharge System
WIP Well Investigation Program Case List
MILITARY PRIV SITES MILITARY PRIV SITES (GEOTRACKER)
PROJECT PROJECT (GEOTRACKER)
WDR Waste Discharge Requirements Listing
CIWQS California Integrated Water Quality System
CERS CERS
NON-CASE INFO NON-CASE INFO (GEOTRACKER)
OTHER OIL GAS OTHER OIL & GAS (GEOTRACKER)
PROD WATER PONDS PROD WATER PONDS (GEOTRACKER)
SAMPLING POINT SAMPLING POINT (GEOTRACKER)
WELL STIM PROJ Well Stimulation Project (GEOTRACKER)
MINES MRDS Mineral Resources Data System
HWTS Hazardous Waste Tracking System

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP EDR Proprietary Manufactured Gas Plants

EXECUTIVE SUMMARY

EDR Hist Auto ---------- EDR Exclusive Historical Auto Stations
EDR Hist Cleaner ---------- EDR Exclusive Historical Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF ---------- Recovered Government Archive Solid Waste Facilities List
RGA LUST ---------- Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Lists of state- and tribal hazardous waste facilities

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

A review of the ENVIROSTOR list, as provided by EDR, and dated 01/24/2022 has revealed that there are 4 ENVIROSTOR sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MENIFEE VALLEY RANCH Facility Id: 33010076 Status: No Further Action	***MCCALL BOULEVARD/MEN***	***SE 0 - 1/8 (0.125 mi.)***	***1***	***9***
MCCALL MESA K-8 SCHO Facility Id: 33010066 Status: No Further Action	***MCCALL BOULEVARD/JUN***	***SSW 1/8 - 1/4 (0.125 mi.)***	***2***	***11***
ELEMENTARY SCHOOL #1 Facility Id: 60000777	***CHAMBERS AVENUE/ANTE***	***WSW 1/2 - 1 (0.852 mi.)***	***3***	***14***

Status: No Action Required

PROPOSED ELEMENTARY	***ROUSE ROAD/SHERMAN R***	***W 1/2 - 1 (0.984 mi.)***	***4***	***17***
Facility Id: 60001068 Status: No Action Required				

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Hazardous waste / Contaminated Sites

SCH: This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category. depending on the level of threat to public health and safety or the. environment they pose.

A review of the SCH list, as provided by EDR, and dated 01/24/2022 has revealed that there are 2 SCH sites within approximately 0.25 miles of the target property.

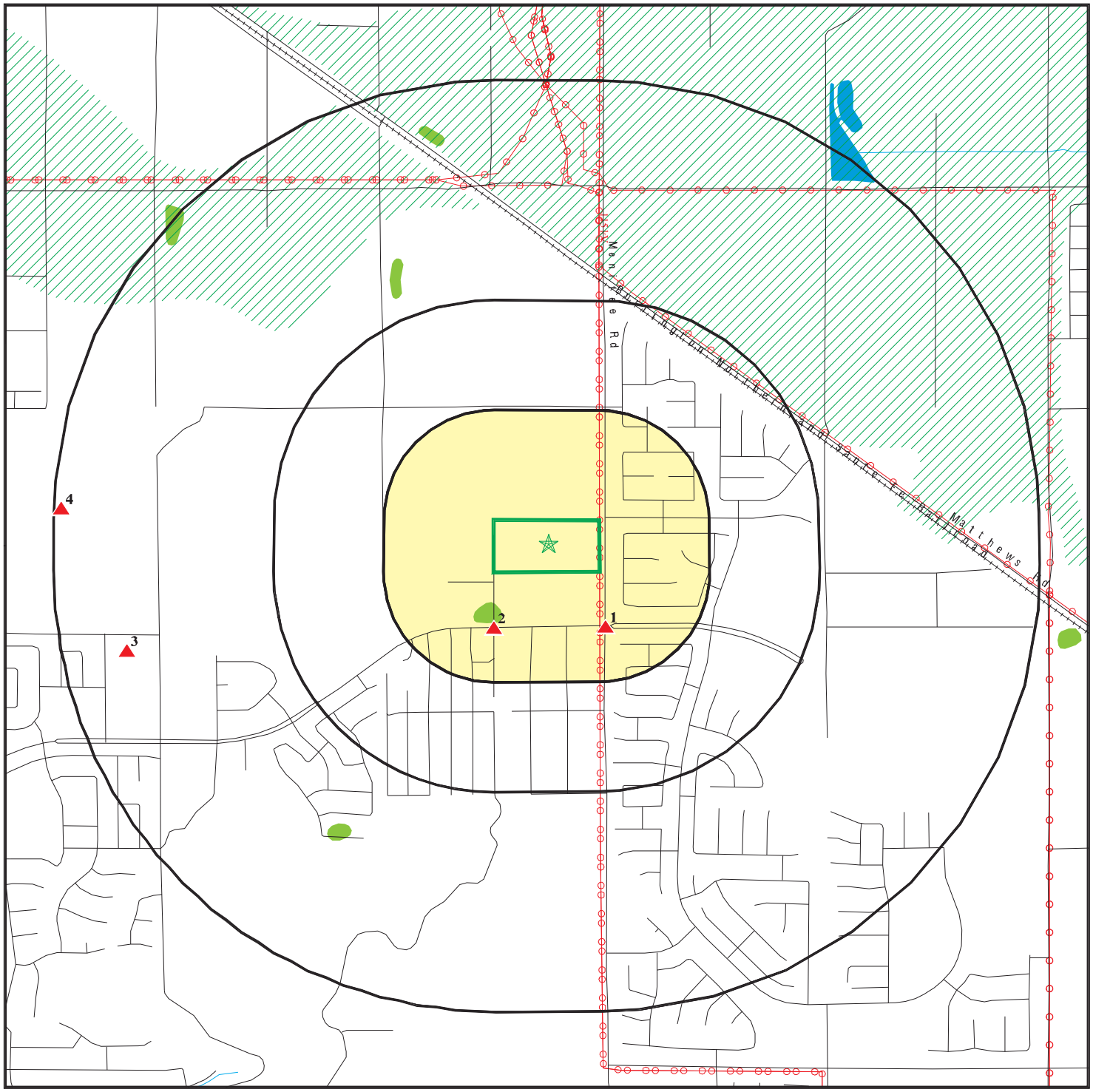
Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MENIFEE VALLEY RANCH Facility Id: 33010076 Status: No Further Action	***MCCALL BOULEVARD/MEN***	***SE 0 - 1/8 (0.125 mi.)***	***1***	***9***
MCCALL MESA K-8 SCHO Facility Id: 33010066 Status: No Further Action	***MCCALL BOULEVARD/JUN***	***SSW 1/8 - 1/4 (0.125 mi.)***	***2***	***11***

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 1 records.

Site Name	Database(s)
	CDL

OVERVIEW MAP - 7013948.2S



0 1/4 1/2 1 Miles

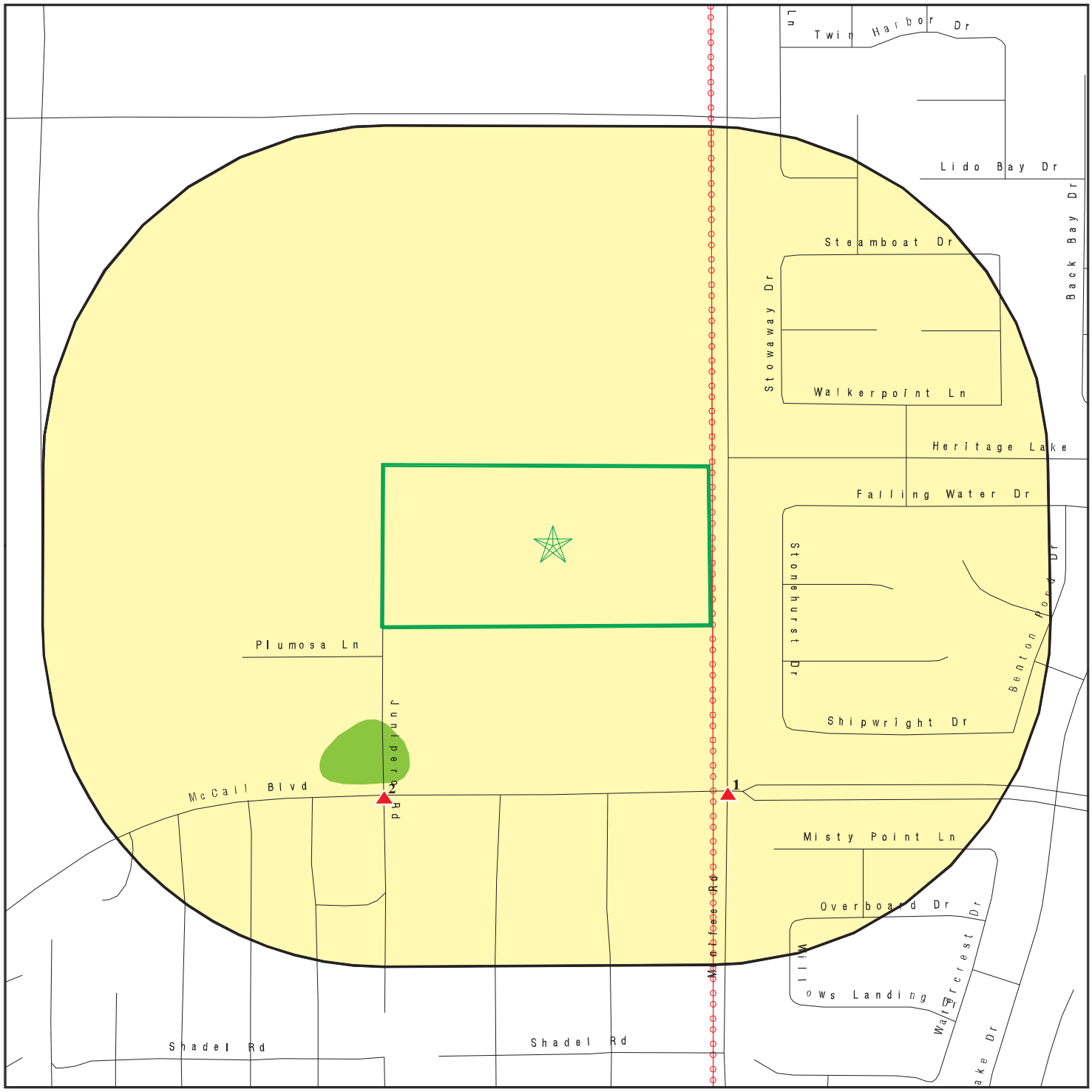
- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	Junipero Road and McCall Blvd	CLIENT:	Lilburn Corporation
ADDRESS:	Junipero Rd Menifee CA 92585	CONTACT:	Frank Amendola
LAT/LONG:	33.724079 / 117.156241	INQUIRY #:	7013948.2s
		DATE:	June 09, 2022 7:05 pm

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DETAIL MAP - 7013948.2S



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Junipero Road and McCall Blvd	CLIENT: Lilburn Corporation
ADDRESS: Junipero Rd Menifee CA 92585	CONTACT: Frank Amendola
LAT/LONG: 33.724079 / 117.156241	INQUIRY #: 7013948.2s DATE: June 09, 2022 7:06 pm

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Lists of Federal NPL (Superfund) sites								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	1.000		0	0	0	0	NR	0
Lists of Federal Delisted NPL sites								
Delisted NPL	1.000		0	0	0	0	NR	0
Lists of Federal sites subject to CERCLA removals and CERCLA orders								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Lists of Federal CERCLA sites with NFRAP								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA facilities undergoing Corrective Action								
CORRACTS	1.000		0	0	0	0	NR	0
Lists of Federal RCRA TSD facilities								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA generators								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-VSQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROLS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	0.001		0	NR	NR	NR	NR	0
Lists of state- and tribal (Superfund) equivalent sites								
RESPONSE	1.000		0	0	0	0	NR	0
Lists of state- and tribal hazardous waste facilities								
ENVIROSTOR	1.000		1	1	0	2	NR	4
Lists of state and tribal landfills and solid waste disposal facilities								
SWF/LF	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
Lists of state and tribal leaking storage tanks								
LUST	0.500		0	0	0	NR	NR	0
INDIAN LUST	0.500		0	0	0	NR	NR	0
CPS-SLIC	0.500		0	0	0	NR	NR	0
Lists of state and tribal registered storage tanks								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
Lists of state and tribal voluntary cleanup sites								
VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
Lists of state and tribal brownfield sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	0.001		0	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	0.001		0	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		1	1	NR	NR	NR	2
CDL	0.001		0	NR	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
CERS HAZ WASTE	0.250		0	0	NR	NR	NR	0
US CDL	0.001		0	NR	NR	NR	NR	0
AQUEOUS FOAM	TP		NR	NR	NR	NR	NR	0
PFAS	0.500		0	0	0	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		0	0	NR	NR	NR	0
HIST UST	0.250		0	0	NR	NR	NR	0
CA FID UST	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
CERS TANKS	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS	0.001		0	NR	NR	NR	NR	0
LIENS 2	0.001		0	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0
CHMIRS	0.001		0	NR	NR	NR	NR	0
LDS	0.001		0	NR	NR	NR	NR	0
MCS	0.001		0	NR	NR	NR	NR	0
SPILLS 90	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	0.001		0	NR	NR	NR	NR	0
TRIS	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	0.001		0	NR	NR	NR	NR	0
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
ECHO	0.001		0	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
Cortese	0.500		0	0	0	NR	NR	0
CUPA Listings	0.250		0	0	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
EMI	0.001		0	NR	NR	NR	NR	0
ENF	0.001		0	NR	NR	NR	NR	0
Financial Assurance	0.001		0	NR	NR	NR	NR	0
HAZNET	0.001		0	NR	NR	NR	NR	0
ICE	0.001		0	NR	NR	NR	NR	0
HIST CORTESE	0.500		0	0	0	NR	NR	0
HWP	1.000		0	0	0	0	NR	0
HWT	0.250		0	0	NR	NR	NR	0
MINES	0.250		0	0	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
NPDES	0.001		0	NR	NR	NR	NR	0
PEST LIC	0.001		0	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
UIC	0.001		0	NR	NR	NR	NR	0
UIC GEO	0.001		0	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	0.001		0	NR	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
MILITARY PRIV SITES	0.001		0	NR	NR	NR	NR	0
PROJECT	0.001		0	NR	NR	NR	NR	0
WDR	0.001		0	NR	NR	NR	NR	0
CIWQS	0.001		0	NR	NR	NR	NR	0
CERS	0.001		0	NR	NR	NR	NR	0
NON-CASE INFO	0.001		0	NR	NR	NR	NR	0
OTHER OIL GAS	0.001		0	NR	NR	NR	NR	0
PROD WATER PONDS	0.001		0	NR	NR	NR	NR	0
SAMPLING POINT	0.001		0	NR	NR	NR	NR	0
WELL STIM PROJ	0.001		0	NR	NR	NR	NR	0
MINES MRDS	0.001		0	NR	NR	NR	NR	0
HWTS	TP		NR	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	0.001		0	NR	NR	NR	NR	0
RGA LUST	0.001		0	NR	NR	NR	NR	0
- Totals --		0	2	2	0	2	0	6

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

1
SE
< 1/8
0.125 mi.
659 ft.

MENIFEE VALLEY RANCH SCHOOL NO. 1
MCCALL BOULEVARD/MENIFEE LOOP W
ROMOLAND, CA 92585

ENVIROSTOR
SCH

S106044339
N/A

Relative:
Higher

Actual:
1468 ft.

ENVIROSTOR:

Name:	MENIFEE VALLEY RANCH SCHOOL NO. 1
Address:	MCCALL BOULEVARD/MENIFEE LOOP W
City,State,Zip:	ROMOLAND, CA 92585
Facility ID:	33010076
Status:	No Further Action
Status Date:	12/10/2004
Site Code:	404479
Site Type:	School Investigation
Site Type Detailed:	School
Acres:	15
NPL:	NO
Regulatory Agencies:	DTSC
Lead Agency:	DTSC
Program Manager:	Amit Pathak
Supervisor:	Shahir Haddad
Division Branch:	Southern California Schools & Brownfields Outreach
Assembly:	67
Senate:	23
Special Program:	Not reported
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	School District
Latitude:	33.7214
Longitude:	-117.1540
APN:	NONE SPECIFIED
Past Use:	AGRICULTURAL - ROW CROPS
Potential COC:	Arsenic DDD DDE DDT
Confirmed COC:	NONE SPECIFIED
Potential Description:	SOIL
Alias Name:	MENIFEE VALLEY RANCH SCHOOL NO. 1
Alias Type:	Alternate Name
Alias Name:	ROMOLAND ELEMENTARY SCHOOL DISTRICT
Alias Type:	Alternate Name
Alias Name:	ROMOLAND SD-PRPSD MNIFEE VLY RNCH SCL #1
Alias Type:	Alternate Name
Alias Name:	404479
Alias Type:	Project Code (Site Code)
Alias Name:	33010076
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Cost Recovery Closeout Memo
Completed Date:	12/10/2004
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Environmental Oversight Agreement
Completed Date:	09/18/2003
Comments:	Not reported

MENIFEE VALLEY RANCH SCHOOL NO. 1 (Continued) **S106044339**

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Preliminary Endangerment Assessment Report
Completed Date:	09/24/2004
Comments:	Not reported

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Preliminary Endangerment Assessment Workplan
Completed Date:	04/21/2004
Comments:	Not reported

Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

SCH:

Name:	MENIFEE VALLEY RANCH SCHOOL NO. 1
Address:	MCCALL BOULEVARD/MENIFEE LOOP W
City,State,Zip:	ROMOLAND, CA 92585
Facility ID:	33010076
Site Type:	School Investigation
Site Type Detail:	School
Site Mgmt. Req.:	NONE SPECIFIED
Acres:	15
National Priorities List:	NO
Cleanup Oversight Agencies:	DTSC
Lead Agency:	DTSC
Lead Agency Description:	* DTSC
Project Manager:	Amit Pathak
Supervisor:	Shahir Haddad
Division Branch:	Southern California Schools & Brownfields Outreach
Site Code:	404479
Assembly:	67
Senate:	23
Special Program Status:	Not reported
Status:	No Further Action
Status Date:	12/10/2004
Restricted Use:	NO
Funding:	School District
Latitude:	33.7214
Longitude:	-117.1540
APN:	NONE SPECIFIED
Past Use:	AGRICULTURAL - ROW CROPS
Potential COC:	Arsenic, DDD, DDE, DDT
Confirmed COC:	NONE SPECIFIED
Potential Description:	SOIL
Alias Name:	MENIFEE VALLEY RANCH SCHOOL NO. 1
Alias Type:	Alternate Name
Alias Name:	ROMOLAND ELEMENTARY SCHOOL DISTRICT

MENIFEE VALLEY RANCH SCHOOL NO. 1 (Continued) **S106044339**

Alias Type: Alternate Name
Alias Name: ROMOLAND SD-PRPSD MNIFEE VLY RNCH SCL #1
Alias Type: Alternate Name
Alias Name: 404479
Alias Type: Project Code (Site Code)
Alias Name: 33010076
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Cost Recovery Closeout Memo
Completed Date: 12/10/2004
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Environmental Oversight Agreement
Completed Date: 09/18/2003
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 09/24/2004
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Workplan
Completed Date: 04/21/2004
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

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2 SSW 1/8-1/4 0.125 mi. 661 ft.

MCCALL MESA K-8 SCHOOL
MCCALL BOULEVARD/JUNIPERO ROAD
ROMOLAND, CA 92586

ENVIROSTOR SCH **S105628773 N/A**

Relative: Higher

Actual: 1497 ft.

ENVIROSTOR:
Name: MCCALL MESA K-8 SCHOOL
Address: MCCALL BOULEVARD/JUNIPERO ROAD
City,State,Zip: ROMOLAND, CA 92586
Facility ID: 33010066
Status: No Further Action
Status Date: 04/18/2003
Site Code: 404388
Site Type: School Investigation

MCCALL MESA K-8 SCHOOL (Continued) **S105628773**

Site Type Detailed: School
Acres: 30.04
NPL: NO
Regulatory Agencies: SMBRP
Lead Agency: SMBRP
Program Manager: Not reported
Supervisor: Javier Hinojosa
Division Branch: Southern California Schools & Brownfields Outreach
Assembly: 67
Senate: 23
Special Program: Not reported
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: School District
Latitude: 33.71149
Longitude: -117.1956
APN: NONE SPECIFIED
Past Use: AGRICULTURAL - ROW CROPS
Potential COC: Lead Zinc
Confirmed COC: 30013-NO 30594-NO
Potential Description: SOIL, SV
Alias Name: MCCALL MESA K-8 SCHOOL
Alias Type: Alternate Name
Alias Name: ROMOLAND ELEMENTARY SCHOOL DISTRICT
Alias Type: Alternate Name
Alias Name: ROMOLAND SD-MCCALL-MESA K-8
Alias Type: Alternate Name
Alias Name: 404388
Alias Type: Project Code (Site Code)
Alias Name: 33010066
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Cost Recovery Closeout Memo
Completed Date: 04/18/2003
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Environmental Oversight Agreement
Completed Date: 10/28/2002
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 04/17/2003
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Phase 1
Completed Date: 09/27/2002
Comments: Not reported

Completed Area Name: PROJECT WIDE

MCCALL MESA K-8 SCHOOL (Continued) **S105628773**

Completed Sub Area Name:	Not reported
Completed Document Type:	Technical Report
Completed Date:	12/24/2002
Comments:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

SCH:

Name:	MCCALL MESA K-8 SCHOOL
Address:	MCCALL BOULEVARD/JUNIPERO ROAD
City,State,Zip:	ROMOLAND, CA 92586
Facility ID:	33010066
Site Type:	School Investigation
Site Type Detail:	School
Site Mgmt. Req.:	NONE SPECIFIED
Acres:	30.04
National Priorities List:	NO
Cleanup Oversight Agencies:	SMBRP
Lead Agency:	SMBRP
Lead Agency Description:	DTSC - Site Cleanup Program
Project Manager:	Not reported
Supervisor:	Javier Hinojosa
Division Branch:	Southern California Schools & Brownfields Outreach
Site Code:	404388
Assembly:	67
Senate:	23
Special Program Status:	Not reported
Status:	No Further Action
Status Date:	04/18/2003
Restricted Use:	NO
Funding:	School District
Latitude:	33.71149
Longitude:	-117.1956
APN:	NONE SPECIFIED
Past Use:	AGRICULTURAL - ROW CROPS
Potential COC:	Lead, Zinc
Confirmed COC:	30013-NO, 30594-NO
Potential Description:	SOIL, SV
Alias Name:	MCCALL MESA K-8 SCHOOL
Alias Type:	Alternate Name
Alias Name:	ROMOLAND ELEMENTARY SCHOOL DISTRICT
Alias Type:	Alternate Name
Alias Name:	ROMOLAND SD-MCCALL-MESA K-8
Alias Type:	Alternate Name
Alias Name:	404388
Alias Type:	Project Code (Site Code)
Alias Name:	33010066
Alias Type:	Envirostor ID Number

MCCALL MESA K-8 SCHOOL (Continued) **S105628773**

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Cost Recovery Closeout Memo
Completed Date:	04/18/2003
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Environmental Oversight Agreement
Completed Date:	10/28/2002
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Preliminary Endangerment Assessment Report
Completed Date:	04/17/2003
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Phase 1
Completed Date:	09/27/2002
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Technical Report
Completed Date:	12/24/2002
Comments:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

---

3 **ELEMENTARY SCHOOL #13** **ENVIROSTOR** **S118757164**
WSW **CHAMBERS AVENUE/ANTELOPE ROAD** **SCH** **N/A**
1/2-1 **SUN CITY, CA 92585**
0.852 mi.
4498 ft.

Relative:
Higher

Actual:
1494 ft.

ENVIROSTOR:

Name:	ELEMENTARY SCHOOL #13
Address:	CHAMBERS AVENUE/ANTELOPE ROAD
City,State,Zip:	SUN CITY, CA 92585
Facility ID:	60000777
Status:	No Action Required
Status Date:	03/22/2008
Site Code:	404763
Site Type:	School Investigation
Site Type Detailed:	School

ELEMENTARY SCHOOL #13 (Continued) **S118757164**

Acres: 12
NPL: NO
Regulatory Agencies: SMBRP
Lead Agency: SMBRP
Program Manager: Angela Garcia
Supervisor: Shahir Haddad
Division Branch: Southern California Schools & Brownfields Outreach
Assembly: 67
Senate: 23
Special Program: Not reported
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: School District
Latitude: 33.7206
Longitude: -117.1729
APN: NONE SPECIFIED
Past Use: NONE
Potential COC: DDD DDE DDT
Confirmed COC: 30006-NO 30007-NO 30008-NO
Potential Description: SOIL
Alias Name: 404763
Alias Type: Project Code (Site Code)
Alias Name: 60000777
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Cost Recovery Closeout Memo
Completed Date: 02/27/2008
Comments: DTSC prepared Cost Recovery Unit project close out Memorandum

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Phase 1
Completed Date: 02/04/2008
Comments: DTSC issued No Action determination based on the Phase I report

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

SCH:

Name: ELEMENTARY SCHOOL #13
Address: CHAMBERS AVENUE/ANTELOPE ROAD
City,State,Zip: SUN CITY, CA 92585
Facility ID: 60000777
Site Type: School Investigation
Site Type Detail: School
Site Mgmt. Req.: NONE SPECIFIED

ELEMENTARY SCHOOL #13 (Continued) **S118757164**

Acres:	12
National Priorities List:	NO
Cleanup Oversight Agencies:	SMBRP
Lead Agency:	SMBRP
Lead Agency Description:	DTSC - Site Cleanup Program
Project Manager:	Angela Garcia
Supervisor:	Shahir Haddad
Division Branch:	Southern California Schools & Brownfields Outreach
Site Code:	404763
Assembly:	67
Senate:	23
Special Program Status:	Not reported
Status:	No Action Required
Status Date:	03/22/2008
Restricted Use:	NO
Funding:	School District
Latitude:	33.7206
Longitude:	-117.1729
APN:	NONE SPECIFIED
Past Use:	NONE
Potential COC:	DDD, DDE, DDT
Confirmed COC:	30006-NO, 30007-NO, 30008-NO
Potential Description:	SOIL
Alias Name:	404763
Alias Type:	Project Code (Site Code)
Alias Name:	60000777
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Cost Recovery Closeout Memo
Completed Date:	02/27/2008
Comments:	DTSC prepared Cost Recovery Unit project close out Memorandum
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Phase 1
Completed Date:	02/04/2008
Comments:	DTSC issued No Action determination based on the Phase I report
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

4
West
1/2-1
0.984 mi.
5193 ft.

PROPOSED ELEMENTARY SCHOOL NO. 15
ROUSE ROAD/SHERMAN ROAD
MENIFEE, CA 92585

ENVIROSTOR
SCH

S118757200
N/A

Relative:
Higher

Actual:
1470 ft.

ENVIROSTOR:

Name:	PROPOSED ELEMENTARY SCHOOL NO. 15
Address:	ROUSE ROAD/SHERMAN ROAD
City,State,Zip:	MENIFEE, CA 92585
Facility ID:	60001068
Status:	No Action Required
Status Date:	05/11/2009
Site Code:	404827
Site Type:	School Investigation
Site Type Detailed:	School
Acres:	12
NPL:	NO
Regulatory Agencies:	SMBRP
Lead Agency:	SMBRP
Program Manager:	Not reported
Supervisor:	Shahir Haddad
Division Branch:	Southern California Schools & Brownfields Outreach
Assembly:	67
Senate:	23
Special Program:	Not reported
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	School District
Latitude:	33.7253
Longitude:	-117.1755
APN:	NONE SPECIFIED
Past Use:	NONE
Potential COC:	Under Investigation
Confirmed COC:	NONE SPECIFIED
Potential Description:	UE
Alias Name:	404827
Alias Type:	Project Code (Site Code)
Alias Name:	60001068
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Cost Recovery Closeout Memo
Completed Date:	05/07/2009
Comments:	DTSC prepared a project close out cost recovery unit memorandum
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Phase 1
Completed Date:	05/07/2009
Comments:	Approval of Phase I ESA w/ NA determination.
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported

PROPOSED ELEMENTARY SCHOOL NO. 15 (Continued) **S118757200**

Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

SCH:

Name: PROPOSED ELEMENTARY SCHOOL NO. 15
Address: ROUSE ROAD/SHERMAN ROAD
City,State,Zip: MENIFEE, CA 92585
Facility ID: 60001068
Site Type: School Investigation
Site Type Detail: School
Site Mgmt. Req.: NONE SPECIFIED
Acres: 12
National Priorities List: NO
Cleanup Oversight Agencies: SMBRP
Lead Agency: SMBRP
Lead Agency Description: DTSC - Site Cleanup Program
Project Manager: Not reported
Supervisor: Shahir Haddad
Division Branch: Southern California Schools & Brownfields Outreach
Site Code: 404827
Assembly: 67
Senate: 23
Special Program Status: Not reported
Status: No Action Required
Status Date: 05/11/2009
Restricted Use: NO
Funding: School District
Latitude: 33.7253
Longitude: -117.1755
APN: NONE SPECIFIED
Past Use: NONE
Potential COC: Under Investigation
Confirmed COC: NONE SPECIFIED
Potential Description: UE
Alias Name: 404827
Alias Type: Project Code (Site Code)
Alias Name: 60001068
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Cost Recovery Closeout Memo
Completed Date: 05/07/2009
Comments: DTSC prepared a project close out cost recovery unit memorandum

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Phase 1
Completed Date: 05/07/2009
Comments: Approval of Phase I ESA w/ NA determination.

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported

PROPOSED ELEMENTARY SCHOOL NO. 15 (Continued) **S118757200**

Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

Count: 1 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
SUN CITY	S107532194		27860 JUNIPERO RD	92585	CDL

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Lists of Federal NPL (Superfund) sites

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 04/27/2022
Date Data Arrived at EDR: 05/05/2022
Date Made Active in Reports: 05/31/2022
Number of Days to Update: 26

Source: EPA
Telephone: N/A
Last EDR Contact: 06/01/2022
Next Scheduled EDR Contact: 07/11/2022
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 3
Telephone 215-814-5418

EPA Region 4
Telephone 404-562-8033

EPA Region 5
Telephone 312-886-6686

EPA Region 10
Telephone 206-553-8665

EPA Region 6
Telephone: 214-655-6659

EPA Region 7
Telephone: 913-551-7247

EPA Region 8
Telephone: 303-312-6774

EPA Region 9
Telephone: 415-947-4246

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 04/27/2022
Date Data Arrived at EDR: 05/05/2022
Date Made Active in Reports: 05/31/2022
Number of Days to Update: 26

Source: EPA
Telephone: N/A
Last EDR Contact: 06/01/2022
Next Scheduled EDR Contact: 07/11/2022
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Lists of Federal Delisted NPL sites

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 04/27/2022
Date Data Arrived at EDR: 05/05/2022
Date Made Active in Reports: 05/31/2022
Number of Days to Update: 26

Source: EPA
Telephone: N/A
Last EDR Contact: 06/01/2022
Next Scheduled EDR Contact: 07/11/2022
Data Release Frequency: Quarterly

Lists of Federal sites subject to CERCLA removals and CERCLA orders

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 05/25/2021
Date Data Arrived at EDR: 06/24/2021
Date Made Active in Reports: 09/20/2021
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 04/01/2022
Next Scheduled EDR Contact: 07/11/2022
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 04/27/2022
Date Data Arrived at EDR: 05/05/2022
Date Made Active in Reports: 05/31/2022
Number of Days to Update: 26

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 06/01/2022
Next Scheduled EDR Contact: 07/25/2022
Data Release Frequency: Quarterly

Lists of Federal CERCLA sites with NFRAP

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 04/27/2022
Date Data Arrived at EDR: 05/05/2022
Date Made Active in Reports: 05/31/2022
Number of Days to Update: 26

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 06/01/2022
Next Scheduled EDR Contact: 07/25/2022
Data Release Frequency: Quarterly

Lists of Federal RCRA facilities undergoing Corrective Action

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 02/28/2022
Date Data Arrived at EDR: 03/02/2022
Date Made Active in Reports: 03/17/2022
Number of Days to Update: 15

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 04/06/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Quarterly

Lists of Federal RCRA TSD facilities

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 02/28/2022
Date Data Arrived at EDR: 03/02/2022
Date Made Active in Reports: 03/17/2022
Number of Days to Update: 15

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 04/06/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Quarterly

Lists of Federal RCRA generators

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 02/28/2022
Date Data Arrived at EDR: 03/02/2022
Date Made Active in Reports: 03/17/2022
Number of Days to Update: 15

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 04/06/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 02/28/2022
Date Data Arrived at EDR: 03/02/2022
Date Made Active in Reports: 03/17/2022
Number of Days to Update: 15

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 04/06/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Quarterly

RCRA-VSQG: RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Very small quantity generators (VSQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 02/28/2022
Date Data Arrived at EDR: 03/02/2022
Date Made Active in Reports: 03/17/2022
Number of Days to Update: 15

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 04/06/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 02/08/2022
Date Data Arrived at EDR: 02/11/2022
Date Made Active in Reports: 05/10/2022
Number of Days to Update: 88

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 05/05/2022
Next Scheduled EDR Contact: 08/22/2022
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 02/21/2022
Date Data Arrived at EDR: 02/23/2022
Date Made Active in Reports: 05/24/2022
Number of Days to Update: 90

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 05/24/2022
Next Scheduled EDR Contact: 09/05/2022
Data Release Frequency: Varies

US INST CONTROLS: Institutional Controls Sites List

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 02/21/2022
Date Data Arrived at EDR: 02/23/2022
Date Made Active in Reports: 05/24/2022
Number of Days to Update: 90

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 05/04/2022
Next Scheduled EDR Contact: 09/05/2022
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/2021
Date Data Arrived at EDR: 03/01/2022
Date Made Active in Reports: 03/10/2022
Number of Days to Update: 9

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 03/22/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Quarterly

Lists of state- and tribal (Superfund) equivalent sites

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 01/24/2022
Date Data Arrived at EDR: 01/25/2022
Date Made Active in Reports: 04/13/2022
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 04/26/2022
Next Scheduled EDR Contact: 08/08/2022
Data Release Frequency: Quarterly

Lists of state- and tribal hazardous waste facilities

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 01/24/2022
Date Data Arrived at EDR: 01/25/2022
Date Made Active in Reports: 04/13/2022
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 04/26/2022
Next Scheduled EDR Contact: 08/08/2022
Data Release Frequency: Quarterly

Lists of state and tribal landfills and solid waste disposal facilities

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 02/07/2022
Date Data Arrived at EDR: 02/08/2022
Date Made Active in Reports: 05/05/2022
Number of Days to Update: 86

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 05/09/2022
Next Scheduled EDR Contact: 08/22/2022
Data Release Frequency: Quarterly

Lists of state and tribal leaking storage tanks

LUST REG 6L: Leaking Underground Storage Tank Case Listing
For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 9: Leaking Underground Storage Tank Report
Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks
California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

LUST REG 7: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List
Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List
Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: No Update Planned

LUST REG 1: Active Toxic Site Investigation
Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST: Leaking Underground Fuel Tank Report (GEOTRACKER)
Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 05/24/2022
Number of Days to Update: 1

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 05/23/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Quarterly

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 04/28/2021
Date Data Arrived at EDR: 06/11/2021
Date Made Active in Reports: 09/07/2021
Number of Days to Update: 88

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 05/28/2021
Date Data Arrived at EDR: 06/22/2021
Date Made Active in Reports: 09/20/2021
Number of Days to Update: 90

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

CPS-SLIC: Statewide SLIC Cases (GEOTRACKER)

Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 05/24/2022
Number of Days to Update: 1

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 05/23/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: No Update Planned

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: No Update Planned

Lists of state and tribal registered storage tanks

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 10/14/2021
Date Data Arrived at EDR: 11/05/2021
Date Made Active in Reports: 02/01/2022
Number of Days to Update: 88

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 04/04/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 03/07/2022
Date Data Arrived at EDR: 03/08/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 86

Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 06/07/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Semi-Annually

UST CLOSURE: Proposed Closure of Underground Storage Tank (UST) Cases
UST cases that are being considered for closure by either the State Water Resources Control Board or the Executive Director have been posted for a 60-day public comment period. UST Case Closures being proposed for consideration by the State Water Resources Control Board. These are primarily UST cases that meet closure criteria under the decisional framework in State Water Board Resolution No. 92-49 and other Board orders. UST Case Closures proposed for consideration by the Executive Director pursuant to State Water Board Resolution No. 2012-0061. These are cases that meet the criteria of the Low-Threat UST Case Closure Policy. UST Case Closure Review Denials and Approved Orders.

Date of Government Version: 03/07/2022
Date Data Arrived at EDR: 03/08/2022
Date Made Active in Reports: 06/03/2022
Number of Days to Update: 87

Source: State Water Resources Control Board
Telephone: 916-327-7844
Last EDR Contact: 03/08/2022
Next Scheduled EDR Contact: 06/20/2022
Data Release Frequency: Varies

MILITARY UST SITES: Military UST Sites (GEOTRACKER)
Military ust sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 05/23/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Varies

AST: Aboveground Petroleum Storage Tank Facilities
A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 09/19/2016
Number of Days to Update: 69

Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 03/10/2022
Next Scheduled EDR Contact: 06/27/2022
Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 10/14/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 04/06/2021
Date Data Arrived at EDR: 06/11/2021
Date Made Active in Reports: 09/07/2021
Number of Days to Update: 88

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 05/28/2021
Date Data Arrived at EDR: 06/22/2021
Date Made Active in Reports: 09/20/2021
Number of Days to Update: 90

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

Lists of state and tribal voluntary cleanup sites

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 03/16/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 07/08/2021
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Properties
Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 01/24/2022
Date Data Arrived at EDR: 01/25/2022
Date Made Active in Reports: 04/13/2022
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 04/26/2022
Next Scheduled EDR Contact: 08/08/2022
Data Release Frequency: Quarterly

Lists of state and tribal brownfield sites

BROWNFIELDS: Considered Brownfieds Sites Listing
A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 12/15/2021
Date Data Arrived at EDR: 12/16/2021
Date Made Active in Reports: 03/03/2022
Number of Days to Update: 77

Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 03/21/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Quarterly

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 02/23/2022
Date Data Arrived at EDR: 03/10/2022
Date Made Active in Reports: 03/10/2022
Number of Days to Update: 0

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 03/15/2022
Next Scheduled EDR Contact: 06/27/2022
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT: Waste Management Unit Database

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/08/2022
Data Release Frequency: No Update Planned

SWRCY: Recycler Database

A listing of recycling facilities in California.

Date of Government Version: 03/07/2022
Date Data Arrived at EDR: 03/08/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 86

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 06/07/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing

A listing of registered waste tire haulers.

Date of Government Version: 02/15/2022
Date Data Arrived at EDR: 02/24/2022
Date Made Active in Reports: 05/25/2022
Number of Days to Update: 90

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 05/19/2022
Next Scheduled EDR Contact: 08/22/2022
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/08/2022
Data Release Frequency: Varies

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 04/14/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: No Update Planned

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land

A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 04/28/2022
Next Scheduled EDR Contact: 08/08/2022
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 02/22/2022
Date Data Arrived at EDR: 02/23/2022
Date Made Active in Reports: 05/10/2022
Number of Days to Update: 76

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 05/24/2022
Next Scheduled EDR Contact: 09/05/2022
Data Release Frequency: No Update Planned

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 01/24/2022
Date Data Arrived at EDR: 01/25/2022
Date Made Active in Reports: 04/13/2022
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 04/26/2022
Next Scheduled EDR Contact: 08/08/2022
Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2019
Date Data Arrived at EDR: 01/20/2021
Date Made Active in Reports: 04/08/2021
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 05/12/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Varies

CERS HAZ WASTE: CERS HAZ WASTE

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, and RCRA LQ HW Generator programs.

Date of Government Version: 01/18/2022
Date Data Arrived at EDR: 01/19/2022
Date Made Active in Reports: 04/11/2022
Number of Days to Update: 82

Source: CalEPA
Telephone: 916-323-2514
Last EDR Contact: 04/19/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Quarterly

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 02/22/2022
Date Data Arrived at EDR: 02/23/2022
Date Made Active in Reports: 05/10/2022
Number of Days to Update: 76

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 05/24/2022
Next Scheduled EDR Contact: 09/05/2022
Data Release Frequency: Quarterly

AQUEOUS FOAM: Former Fire Training Facility Assessments Listing

Airports shown on this list are those believed to use Aqueous Film Forming Foam (AFFF), and certified by the Federal Aviation Administration (FAA) under Title 14, Code of Federal Regulations (CFR), Part 139 (14 CFR Part 139). This list was created by SWRCB using information available from the FAA. Location points shown are from the latitude and longitude listed on the FAA airport master record.

Date of Government Version: 02/20/2020
Date Data Arrived at EDR: 12/10/2021
Date Made Active in Reports: 02/25/2022
Number of Days to Update: 77

Source: State Water Resources Control Board
Telephone: 916-341-5455
Last EDR Contact: 03/11/2022
Next Scheduled EDR Contact: 06/20/2022
Data Release Frequency: Varies

PFAS: PFAS Contamination Site Location Listing

A listing of PFAS contaminated sites included in the GeoTracker database.

Date of Government Version: 03/07/2022
Date Data Arrived at EDR: 03/08/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 86

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 06/07/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Varies

Local Lists of Registered Storage Tanks

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SAN FRANCISCO AST: Aboveground Storage Tank Site Listing

Aboveground storage tank sites

Date of Government Version: 02/03/2022
Date Data Arrived at EDR: 02/04/2022
Date Made Active in Reports: 05/02/2022
Number of Days to Update: 87

Source: San Francisco County Department of Public Health
Telephone: 415-252-3896
Last EDR Contact: 04/28/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Varies

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CERS TANKS: California Environmental Reporting System (CERS) Tanks

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs.

Date of Government Version: 01/18/2022
Date Data Arrived at EDR: 01/19/2022
Date Made Active in Reports: 04/11/2022
Number of Days to Update: 82

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 04/19/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Quarterly

Local Land Records

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 02/24/2022
Date Data Arrived at EDR: 02/25/2022
Date Made Active in Reports: 03/09/2022
Number of Days to Update: 12

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/25/2022
Next Scheduled EDR Contact: 09/12/2022
Data Release Frequency: Varies

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 04/27/2022
Date Data Arrived at EDR: 05/05/2022
Date Made Active in Reports: 05/31/2022
Number of Days to Update: 26

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 06/01/2022
Next Scheduled EDR Contact: 07/11/2022
Data Release Frequency: Semi-Annually

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 02/28/2022
Date Data Arrived at EDR: 02/28/2022
Date Made Active in Reports: 05/25/2022
Number of Days to Update: 86

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 05/31/2022
Next Scheduled EDR Contact: 09/12/2022
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/15/2021
Date Data Arrived at EDR: 12/16/2021
Date Made Active in Reports: 03/10/2022
Number of Days to Update: 84

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 03/21/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Quarterly

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 12/31/2021
Date Data Arrived at EDR: 01/19/2022
Date Made Active in Reports: 04/08/2022
Number of Days to Update: 79

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 04/19/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Semi-Annually

LDS: Land Disposal Sites Listing (GEOTRACKER)

Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 05/24/2022
Number of Days to Update: 1

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 05/23/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing (GEOTRACKER)

Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 05/24/2022
Number of Days to Update: 1

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 05/23/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 02/28/2022
Date Data Arrived at EDR: 03/02/2022
Date Made Active in Reports: 03/17/2022
Number of Days to Update: 15

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 04/06/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/01/2021
Date Data Arrived at EDR: 02/15/2022
Date Made Active in Reports: 05/10/2022
Number of Days to Update: 84

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 05/17/2022
Next Scheduled EDR Contact: 08/29/2022
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 06/07/2021
Date Data Arrived at EDR: 07/13/2021
Date Made Active in Reports: 03/09/2022
Number of Days to Update: 239

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 04/12/2022
Next Scheduled EDR Contact: 07/25/2022
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/11/2018
Date Made Active in Reports: 11/06/2019
Number of Days to Update: 574

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 04/05/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 01/01/2017
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 05/06/2022
Next Scheduled EDR Contact: 08/22/2022
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 12/13/2021
Date Data Arrived at EDR: 12/17/2021
Date Made Active in Reports: 03/17/2022
Number of Days to Update: 90

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 03/21/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 04/28/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 05/06/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 06/17/2020
Date Made Active in Reports: 09/10/2020
Number of Days to Update: 85

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 03/18/2022
Next Scheduled EDR Contact: 06/27/2022
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 08/14/2020
Date Made Active in Reports: 11/04/2020
Number of Days to Update: 82
Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 05/20/2022
Next Scheduled EDR Contact: 08/29/2022
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 01/19/2022
Date Data Arrived at EDR: 01/19/2022
Date Made Active in Reports: 04/11/2022
Number of Days to Update: 82
Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 04/20/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 04/27/2022
Date Data Arrived at EDR: 05/05/2022
Date Made Active in Reports: 05/31/2022
Number of Days to Update: 26
Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 06/01/2022
Next Scheduled EDR Contact: 09/12/2022
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 04/27/2022
Date Data Arrived at EDR: 05/04/2022
Date Made Active in Reports: 05/10/2022
Number of Days to Update: 6
Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 04/18/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35
Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties
A listing of verified Potentially Responsible Parties

Date of Government Version: 01/25/2022
Date Data Arrived at EDR: 02/03/2022
Date Made Active in Reports: 02/25/2022
Number of Days to Update: 22

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 06/01/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Quarterly

PADS: PCB Activity Database System
PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 01/20/2022
Date Data Arrived at EDR: 01/20/2022
Date Made Active in Reports: 03/25/2022
Number of Days to Update: 64

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 04/08/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System
The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 03/31/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

MLTS: Material Licensing Tracking System
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/29/2021
Date Data Arrived at EDR: 08/24/2021
Date Made Active in Reports: 11/19/2021
Number of Days to Update: 87

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 04/18/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

COAL ASH DOE: Steam-Electric Plant Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 11/30/2021
Date Made Active in Reports: 02/22/2022
Number of Days to Update: 84
Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 06/02/2022
Next Scheduled EDR Contact: 09/12/2022
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 01/12/2017
Date Data Arrived at EDR: 03/05/2019
Date Made Active in Reports: 11/11/2019
Number of Days to Update: 251
Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 05/25/2022
Next Scheduled EDR Contact: 09/12/2022
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 09/13/2019
Date Data Arrived at EDR: 11/06/2019
Date Made Active in Reports: 02/10/2020
Number of Days to Update: 96
Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 05/06/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/01/2019
Date Data Arrived at EDR: 07/01/2019
Date Made Active in Reports: 09/23/2019
Number of Days to Update: 84
Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 03/28/2022
Next Scheduled EDR Contact: 07/11/2022
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 01/02/2020
Date Data Arrived at EDR: 01/28/2020
Date Made Active in Reports: 04/17/2020
Number of Days to Update: 80

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 04/26/2022
Next Scheduled EDR Contact: 08/08/2022
Data Release Frequency: Quarterly

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/31/2021
Date Data Arrived at EDR: 01/14/2022
Date Made Active in Reports: 03/25/2022
Number of Days to Update: 70

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 04/04/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2019
Date Data Arrived at EDR: 03/02/2022
Date Made Active in Reports: 03/25/2022
Number of Days to Update: 23

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 03/02/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 04/05/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 07/26/2021
Date Data Arrived at EDR: 07/27/2021
Date Made Active in Reports: 10/22/2021
Number of Days to Update: 87

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 04/28/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 08/30/2019
Date Data Arrived at EDR: 11/15/2019
Date Made Active in Reports: 01/28/2020
Number of Days to Update: 74

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 05/16/2022
Next Scheduled EDR Contact: 08/29/2022
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 04/27/2022
Date Data Arrived at EDR: 05/05/2022
Date Made Active in Reports: 05/31/2022
Number of Days to Update: 26

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 09/01/2022
Next Scheduled EDR Contact: 07/11/2022
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 02/01/2022
Date Data Arrived at EDR: 02/23/2022
Date Made Active in Reports: 05/24/2022
Number of Days to Update: 90

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 05/25/2022
Next Scheduled EDR Contact: 09/05/2022
Data Release Frequency: Semi-Annually

MINES VIOLATIONS: MSHA Violation Assessment Data

Mines violation and assessment information. Department of Labor, Mine Safety & Health Administration.

Date of Government Version: 03/21/2022
Date Data Arrived at EDR: 03/22/2022
Date Made Active in Reports: 03/25/2022
Number of Days to Update: 3

Source: DOL, Mine Safety & Health Admi
Telephone: 202-693-9424
Last EDR Contact: 05/26/2022
Next Scheduled EDR Contact: 09/12/2022
Data Release Frequency: Quarterly

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 05/06/2020
Date Data Arrived at EDR: 05/27/2020
Date Made Active in Reports: 08/13/2020
Number of Days to Update: 78

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 05/27/2022
Next Scheduled EDR Contact: 09/05/2022
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 05/27/2022
Next Scheduled EDR Contact: 09/05/2022
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 12/14/2021
Date Data Arrived at EDR: 12/15/2021
Date Made Active in Reports: 03/10/2022
Number of Days to Update: 85

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 06/02/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 05/13/2022
Date Data Arrived at EDR: 05/18/2022
Date Made Active in Reports: 05/31/2022
Number of Days to Update: 13

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 05/18/2022
Next Scheduled EDR Contact: 09/12/2022
Data Release Frequency: Quarterly

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 05/06/2021
Date Data Arrived at EDR: 05/21/2021
Date Made Active in Reports: 08/11/2021
Number of Days to Update: 82

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 05/19/2022
Next Scheduled EDR Contact: 09/05/2022
Data Release Frequency: Varies

UXO: Unexploded Ordnance Sites
A listing of unexploded ordnance site locations

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 01/11/2022
Date Made Active in Reports: 02/14/2022
Number of Days to Update: 34
Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 04/12/2022
Next Scheduled EDR Contact: 07/25/2022
Data Release Frequency: Varies

ECHO: Enforcement & Compliance History Information
ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 01/01/2022
Date Data Arrived at EDR: 01/04/2022
Date Made Active in Reports: 01/10/2022
Number of Days to Update: 6
Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 04/05/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Quarterly

FUELS PROGRAM: EPA Fuels Program Registered Listing
This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 02/17/2022
Date Data Arrived at EDR: 02/17/2022
Date Made Active in Reports: 05/10/2022
Number of Days to Update: 82
Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 05/17/2022
Next Scheduled EDR Contact: 08/29/2022
Data Release Frequency: Quarterly

CA BOND EXP. PLAN: Bond Expenditure Plan
Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6
Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CORTESE: "Cortese" Hazardous Waste & Substances Sites List
The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 12/16/2021
Date Data Arrived at EDR: 12/16/2021
Date Made Active in Reports: 03/03/2022
Number of Days to Update: 77
Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 03/21/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Quarterly

CUPA LIVERMORE-PLEASANTON: CUPA Facility Listing
list of facilities associated with the various CUPA programs in Livermore-Pleasanton

Date of Government Version: 12/07/2021
Date Data Arrived at EDR: 05/09/2022
Date Made Active in Reports: 05/17/2022
Number of Days to Update: 8
Source: Livermore-Pleasanton Fire Department
Telephone: 925-454-2361
Last EDR Contact: 05/09/2022
Next Scheduled EDR Contact: 08/22/2022
Data Release Frequency: Varies

DRYCLEAN AVAQMD: Antelope Valley Air Quality Management District Drycleaner Listing
A listing of dry cleaners in the Antelope Valley Air Quality Management District.

Date of Government Version: 02/24/2022
Date Data Arrived at EDR: 02/25/2022
Date Made Active in Reports: 05/18/2022
Number of Days to Update: 82

Source: Antelope Valley Air Quality Management District
Telephone: 661-723-8070
Last EDR Contact: 05/25/2022
Next Scheduled EDR Contact: 09/12/2022
Data Release Frequency: Varies

DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 08/27/2021
Date Data Arrived at EDR: 09/01/2021
Date Made Active in Reports: 11/19/2021
Number of Days to Update: 79

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 06/01/2022
Next Scheduled EDR Contact: 09/12/2022
Data Release Frequency: Annually

DRYCLEAN SOUTH COAST: South Coast Air Quality Management District Drycleaner Listing

A listing of dry cleaners in the South Coast Air Quality Management District

Date of Government Version: 02/17/2022
Date Data Arrived at EDR: 02/24/2022
Date Made Active in Reports: 05/18/2022
Number of Days to Update: 83

Source: South Coast Air Quality Management District
Telephone: 909-396-3211
Last EDR Contact: 05/19/2022
Next Scheduled EDR Contact: 09/05/2022
Data Release Frequency: Varies

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2019
Date Data Arrived at EDR: 06/10/2021
Date Made Active in Reports: 08/27/2021
Number of Days to Update: 78

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 03/18/2022
Next Scheduled EDR Contact: 06/27/2022
Data Release Frequency: Varies

ENF: Enforcement Action Listing

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 04/12/2022
Date Data Arrived at EDR: 04/19/2022
Date Made Active in Reports: 05/31/2022
Number of Days to Update: 42

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 04/19/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing

Financial Assurance information

Date of Government Version: 01/13/2022
Date Data Arrived at EDR: 01/14/2022
Date Made Active in Reports: 04/08/2022
Number of Days to Update: 84

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 04/28/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing

A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 02/23/2022
Date Data Arrived at EDR: 02/24/2022
Date Made Active in Reports: 05/18/2022
Number of Days to Update: 83

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 05/19/2022
Next Scheduled EDR Contact: 08/22/2022
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2019
Date Data Arrived at EDR: 04/15/2020
Date Made Active in Reports: 07/02/2020
Number of Days to Update: 78

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 04/08/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Annually

ICE: ICE

Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 02/14/2022
Date Data Arrived at EDR: 02/15/2022
Date Made Active in Reports: 05/12/2022
Number of Days to Update: 86

Source: Department of Toxic Subsances Control
Telephone: 877-786-9427
Last EDR Contact: 05/17/2022
Next Scheduled EDR Contact: 08/29/2022
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HWP: EnviroStor Permitted Facilities Listing

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 02/14/2022
Date Data Arrived at EDR: 02/15/2022
Date Made Active in Reports: 05/12/2022
Number of Days to Update: 86

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/17/2022
Next Scheduled EDR Contact: 08/29/2022
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 01/03/2022
Date Data Arrived at EDR: 01/04/2022
Date Made Active in Reports: 03/18/2022
Number of Days to Update: 73

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 04/05/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Quarterly

MINES: Mines Site Location Listing
A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 03/07/2022
Date Data Arrived at EDR: 03/08/2022
Date Made Active in Reports: 06/01/2022
Number of Days to Update: 85
Source: Department of Conservation
Telephone: 916-322-1080
Last EDR Contact: 06/07/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Quarterly

MWMP: Medical Waste Management Program Listing
The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 02/17/2022
Date Data Arrived at EDR: 02/28/2022
Date Made Active in Reports: 05/25/2022
Number of Days to Update: 86
Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 05/31/2022
Next Scheduled EDR Contact: 09/12/2022
Data Release Frequency: Varies

NPDES: NPDES Permits Listing
A listing of NPDES permits, including stormwater.

Date of Government Version: 02/07/2022
Date Data Arrived at EDR: 02/08/2022
Date Made Active in Reports: 05/05/2022
Number of Days to Update: 86
Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 05/09/2022
Next Scheduled EDR Contact: 08/22/2022
Data Release Frequency: Quarterly

PEST LIC: Pesticide Regulation Licenses Listing
A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 02/28/2022
Date Data Arrived at EDR: 02/28/2022
Date Made Active in Reports: 05/25/2022
Number of Days to Update: 86
Source: Department of Pesticide Regulation
Telephone: 916-445-4038
Last EDR Contact: 05/31/2022
Next Scheduled EDR Contact: 09/12/2022
Data Release Frequency: Quarterly

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 03/07/2022
Date Data Arrived at EDR: 03/08/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 86
Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 06/07/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Quarterly

NOTIFY 65: Proposition 65 Records
Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 03/11/2022
Date Data Arrived at EDR: 03/15/2022
Date Made Active in Reports: 06/08/2022
Number of Days to Update: 85
Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 03/09/2022
Next Scheduled EDR Contact: 06/26/2022
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UIC: UIC Listing
A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 03/07/2022
Date Data Arrived at EDR: 03/08/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 86
Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 06/07/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Varies

UIC GEO: Underground Injection Control Sites (GEOTRACKER)
Underground control injection sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10
Source: State Water Resource Control Board
Telephone: 866-480-1028
Last EDR Contact: 05/23/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Varies

WASTEWATER PITS: Oil Wastewater Pits Listing
Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water boards review found that more than one-third of the region's active disposal pits are operating without permission.

Date of Government Version: 02/11/2021
Date Data Arrived at EDR: 07/01/2021
Date Made Active in Reports: 09/29/2021
Number of Days to Update: 90
Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 04/08/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Varies

WDS: Waste Discharge System
Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9
Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 05/12/2022
Next Scheduled EDR Contact: 08/29/2022
Data Release Frequency: No Update Planned

WIP: Well Investigation Program Case List
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13
Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 03/16/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: No Update Planned

MILITARY PRIV SITES: Military Privatized Sites (GEOTRACKER)
Military privatized sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 05/23/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Varies

PROJECT: Project Sites (GEOTRACKER)
Projects sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 05/23/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Varies

WDR: Waste Discharge Requirements Listing

In general, the Waste Discharge Requirements (WDRs) Program (sometimes also referred to as the "Non Chapter 15 (Non 15) Program") regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act. Exemptions from Title 27 may be granted for nine categories of discharges (e.g., sewage, wastewater, etc.) that meet, and continue to meet, the preconditions listed for each specific exemption. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to section 20230 of Title 27.

Date of Government Version: 03/07/2022
Date Data Arrived at EDR: 03/08/2022
Date Made Active in Reports: 06/03/2022
Number of Days to Update: 87

Source: State Water Resources Control Board
Telephone: 916-341-5810
Last EDR Contact: 06/07/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Quarterly

CIWQS: California Integrated Water Quality System

The California Integrated Water Quality System (CIWQS) is a computer system used by the State and Regional Water Quality Control Boards to track information about places of environmental interest, manage permits and other orders, track inspections, and manage violations and enforcement activities.

Date of Government Version: 02/28/2022
Date Data Arrived at EDR: 02/28/2022
Date Made Active in Reports: 05/25/2022
Number of Days to Update: 86

Source: State Water Resources Control Board
Telephone: 866-794-4977
Last EDR Contact: 05/31/2022
Next Scheduled EDR Contact: 09/12/2022
Data Release Frequency: Varies

CERS: CalEPA Regulated Site Portal Data

The CalEPA Regulated Site Portal database combines data about environmentally regulated sites and facilities in California into a single database. It combines data from a variety of state and federal databases, and provides an overview of regulated activities across the spectrum of environmental programs for any given location in California. These activities include hazardous materials and waste, state and federal cleanups, impacted ground and surface waters, and toxic materials

Date of Government Version: 01/18/2022
Date Data Arrived at EDR: 01/19/2022
Date Made Active in Reports: 04/08/2022
Number of Days to Update: 79

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 04/19/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

NON-CASE INFO: Non-Case Information Sites (GEOTRACKER)

Non-Case Information sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 05/23/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Varies

OTHER OIL GAS: Other Oil & Gas Projects Sites (GEOTRACKER)

Other Oil & Gas Projects sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 05/23/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Varies

PROD WATER PONDS: Produced Water Ponds Sites (GEOTRACKER)
Produced water ponds sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 05/23/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Varies

SAMPLING POINT: Sampling Point ? Public Sites (GEOTRACKER)
Sampling point - public sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 05/23/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Varies

WELL STIM PROJ: Well Stimulation Project (GEOTRACKER)
Includes areas of groundwater monitoring plans, a depiction of the monitoring network, and the facilities, boundaries, and subsurface characteristics of the oilfield and the features (oil and gas wells, produced water ponds, UIC wells, water supply wells, etc?) being monitored

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 05/23/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Varies

PCS ENF: Enforcement data
No description is available for this data

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 02/05/2015
Date Made Active in Reports: 03/06/2015
Number of Days to Update: 29

Source: EPA
Telephone: 202-564-2497
Last EDR Contact: 03/31/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Varies

HWTS: Hazardous Waste Tracking System
DTSC maintains the Hazardous Waste Tracking System that stores ID number information since the early 1980s and manifest data since 1993. The system collects both manifest copies from the generator and destination facility.

Date of Government Version: 04/05/2022
Date Data Arrived at EDR: 04/05/2022
Date Made Active in Reports: 04/26/2022
Number of Days to Update: 21

Source: Department of Toxic Substances Control
Telephone: 916-324-2444
Last EDR Contact: 04/05/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Varies

MINES MRDS: Mineral Resources Data System
Mineral Resources Data System

Date of Government Version: 04/06/2018
Date Data Arrived at EDR: 10/21/2019
Date Made Active in Reports: 10/24/2019
Number of Days to Update: 3

Source: USGS
Telephone: 703-648-6533
Last EDR Contact: 05/27/2022
Next Scheduled EDR Contact: 09/05/2022
Data Release Frequency: Varies

PCS: Permit Compliance System
PCS is a computerized management information system that contains data on National Pollutant Discharge Elimination System (NPDES) permit holding facilities. PCS tracks the permit, compliance, and enforcement status of NPDES facilities.

Date of Government Version: 07/14/2011
Date Data Arrived at EDR: 08/05/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 55

Source: EPA, Office of Water
Telephone: 202-564-2496
Last EDR Contact: 03/31/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Semi-Annually

PCS INACTIVE: Listing of Inactive PCS Permits

An inactive permit is a facility that has shut down or is no longer discharging.

Date of Government Version: 11/05/2014
Date Data Arrived at EDR: 01/06/2015
Date Made Active in Reports: 05/06/2015
Number of Days to Update: 120

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 03/31/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Semi-Annually

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

CS ALAMEDA: Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 01/09/2019
Date Data Arrived at EDR: 01/11/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 53

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 03/31/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Semi-Annually

UST ALAMEDA: Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 12/28/2021
Date Data Arrived at EDR: 12/28/2021
Date Made Active in Reports: 03/18/2022
Number of Days to Update: 80

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 04/28/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA AMADOR: CUPA Facility List
Cupa Facility List

Date of Government Version: 02/04/2022
Date Data Arrived at EDR: 02/04/2022
Date Made Active in Reports: 05/02/2022
Number of Days to Update: 87

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 05/12/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA BUTTE: CUPA Facility Listing
Cupa facility list.

Date of Government Version: 04/21/2017
Date Data Arrived at EDR: 04/25/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 106

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 03/31/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA CALVERAS: CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 03/17/2022
Date Data Arrived at EDR: 03/18/2022
Date Made Active in Reports: 06/08/2022
Number of Days to Update: 82

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 03/17/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA COLUSA: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/06/2020
Date Data Arrived at EDR: 04/23/2020
Date Made Active in Reports: 07/10/2020
Number of Days to Update: 78

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 04/28/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

SL CONTRA COSTA: Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 01/24/2022
Date Data Arrived at EDR: 01/25/2022
Date Made Active in Reports: 04/14/2022
Number of Days to Update: 79

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/08/2022
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA DEL NORTE: CUPA Facility List
Cupa Facility list

Date of Government Version: 01/10/2022
Date Data Arrived at EDR: 01/26/2022
Date Made Active in Reports: 04/14/2022
Number of Days to Update: 78

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 05/04/2022
Next Scheduled EDR Contact: 08/08/2022
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA EL DORADO: CUPA Facility List
CUPA facility list.

Date of Government Version: 02/16/2022
Date Data Arrived at EDR: 02/17/2022
Date Made Active in Reports: 05/10/2022
Number of Days to Update: 82

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 06/02/2022
Next Scheduled EDR Contact: 08/08/2022
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA FRESNO: CUPA Resources List
Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 06/28/2021
Date Data Arrived at EDR: 12/21/2021
Date Made Active in Reports: 03/03/2022
Number of Days to Update: 72

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 03/31/2022
Next Scheduled EDR Contact: 07/11/2022
Data Release Frequency: Semi-Annually

GLENN COUNTY:

CUPA GLENN: CUPA Facility List
Cupa facility list

Date of Government Version: 01/22/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 49

Source: Glenn County Air Pollution Control District
Telephone: 830-934-6500
Last EDR Contact: 04/14/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: No Update Planned

HUMBOLDT COUNTY:

CUPA HUMBOLDT: CUPA Facility List
CUPA facility list.

Date of Government Version: 08/12/2021
Date Data Arrived at EDR: 08/12/2021
Date Made Active in Reports: 11/08/2021
Number of Days to Update: 88

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 05/12/2022
Next Scheduled EDR Contact: 08/29/2022
Data Release Frequency: Semi-Annually

IMPERIAL COUNTY:

CUPA IMPERIAL: CUPA Facility List
Cupa facility list.

Date of Government Version: 01/13/2022
Date Data Arrived at EDR: 01/14/2022
Date Made Active in Reports: 04/06/2022
Number of Days to Update: 82

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 04/18/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

INYO COUNTY:

CUPA INYO: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/03/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 72

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 05/12/2022
Next Scheduled EDR Contact: 08/29/2022
Data Release Frequency: Varies

KERN COUNTY:

CUPA KERN: CUPA Facility List
A listing of sites included in the Kern County Hazardous Material Business Plan.

Date of Government Version: 02/10/2022
Date Data Arrived at EDR: 02/11/2022
Date Made Active in Reports: 05/04/2022
Number of Days to Update: 82

Source: Kern County Public Health
Telephone: 661-321-3000
Last EDR Contact: 04/28/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Varies

UST KERN: Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 02/10/2022
Date Data Arrived at EDR: 02/11/2022
Date Made Active in Reports: 05/04/2022
Number of Days to Update: 82

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 04/28/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA KINGS: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 12/03/2020
Date Data Arrived at EDR: 01/26/2021
Date Made Active in Reports: 04/14/2021
Number of Days to Update: 78

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 05/25/2022
Next Scheduled EDR Contact: 08/29/2022
Data Release Frequency: Varies

LAKE COUNTY:

CUPA LAKE: CUPA Facility List
Cupa facility list

Date of Government Version: 02/10/2022
Date Data Arrived at EDR: 02/11/2022
Date Made Active in Reports: 05/04/2022
Number of Days to Update: 82

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 04/11/2022
Next Scheduled EDR Contact: 07/25/2022
Data Release Frequency: Varies

LASSEN COUNTY:

CUPA LASSEN: CUPA Facility List
Cupa facility list

Date of Government Version: 07/31/2020
Date Data Arrived at EDR: 08/21/2020
Date Made Active in Reports: 11/09/2020
Number of Days to Update: 80

Source: Lassen County Environmental Health
Telephone: 530-251-8528
Last EDR Contact: 04/14/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

LOS ANGELES COUNTY:

AOCONCERN: Key Areas of Concerns in Los Angeles County
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office. Date of Government Version: 3/30/2009 Exide Site area is a cleanup plan of lead-impacted soil surrounding the former Exide Facility as designated by the DTSC. Date of Government Version: 7/17/2017

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: N/A
Telephone: N/A
Last EDR Contact: 03/10/2022
Next Scheduled EDR Contact: 06/27/2022
Data Release Frequency: No Update Planned

HMS LOS ANGELES: HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 04/04/2022
Date Data Arrived at EDR: 04/05/2022
Date Made Active in Reports: 04/13/2022
Number of Days to Update: 8

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 04/04/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Semi-Annually

LF LOS ANGELES: List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 01/10/2022
Date Data Arrived at EDR: 01/11/2022
Date Made Active in Reports: 04/04/2022
Number of Days to Update: 83

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 04/12/2022
Next Scheduled EDR Contact: 07/25/2022
Data Release Frequency: Varies

LF LOS ANGELES CITY: City of Los Angeles Landfills
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 01/01/2022
Date Data Arrived at EDR: 01/21/2022
Date Made Active in Reports: 04/11/2022
Number of Days to Update: 80

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 04/08/2022
Next Scheduled EDR Contact: 07/25/2022
Data Release Frequency: Varies

LOS ANGELES AST: Active & Inactive AST Inventory

A listing of active & inactive above ground petroleum storage tank site locations, located in the City of Los Angeles.

Date of Government Version: 06/01/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 58

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 03/23/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Varies

LOS ANGELES CO LF METHANE: Methane Producing Landfills

This data was created on April 30, 2012 to represent known disposal sites in Los Angeles County that may produce and emanate methane gas. The shapefile contains disposal sites within Los Angeles County that once accepted degradable refuse material. Information used to create this data was extracted from a landfill survey performed by County Engineers (Major Waste System Map, 1973) as well as historical records from CalRecycle, Regional Water Quality Control Board, and Los Angeles County Department of Public Health

Date of Government Version: 01/10/2022
Date Data Arrived at EDR: 01/12/2022
Date Made Active in Reports: 04/04/2022
Number of Days to Update: 82

Source: Los Angeles County Department of Public Works
Telephone: 626-458-6973
Last EDR Contact: 04/13/2022
Next Scheduled EDR Contact: 07/25/2022
Data Release Frequency: No Update Planned

LOS ANGELES HM: Active & Inactive Hazardous Materials Inventory

A listing of active & inactive hazardous materials facility locations, located in the City of Los Angeles.

Date of Government Version: 04/19/2021
Date Data Arrived at EDR: 06/17/2021
Date Made Active in Reports: 06/28/2021
Number of Days to Update: 11

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 03/21/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Varies

LOS ANGELES UST: Active & Inactive UST Inventory

A listing of active & inactive underground storage tank site locations and underground storage tank historical sites, located in the City of Los Angeles.

Date of Government Version: 04/19/2021
Date Data Arrived at EDR: 06/17/2021
Date Made Active in Reports: 09/14/2021
Number of Days to Update: 89

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 03/21/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Varies

SITE MIT LOS ANGELES: Site Mitigation List

Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 05/26/2021
Date Data Arrived at EDR: 07/09/2021
Date Made Active in Reports: 09/29/2021
Number of Days to Update: 82

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 04/14/2022
Next Scheduled EDR Contact: 07/25/2022
Data Release Frequency: Annually

UST EL SEGUNDO: City of El Segundo Underground Storage Tank

Underground storage tank sites located in El Segundo city.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 04/19/2017
Date Made Active in Reports: 05/10/2017
Number of Days to Update: 21

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 04/08/2022
Next Scheduled EDR Contact: 07/25/2022
Data Release Frequency: No Update Planned

UST LONG BEACH: City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 04/22/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/27/2019
Number of Days to Update: 65

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 04/14/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

UST TORRANCE: City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 02/02/2021
Date Data Arrived at EDR: 04/28/2021
Date Made Active in Reports: 07/13/2021
Number of Days to Update: 76

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 04/18/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA MADERA: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 08/10/2020
Date Data Arrived at EDR: 08/12/2020
Date Made Active in Reports: 10/23/2020
Number of Days to Update: 72

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 05/12/2022
Next Scheduled EDR Contact: 08/29/2022
Data Release Frequency: Varies

MARIN COUNTY:

UST MARIN: Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 09/26/2018
Date Data Arrived at EDR: 10/04/2018
Date Made Active in Reports: 11/02/2018
Number of Days to Update: 29

Source: Public Works Department Waste Management
Telephone: 415-473-6647
Last EDR Contact: 03/23/2022
Next Scheduled EDR Contact: 07/11/2022
Data Release Frequency: Semi-Annually

MENDOCINO COUNTY:

UST MENDOCINO: Mendocino County UST Database
A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 09/22/2021
Date Data Arrived at EDR: 11/18/2021
Date Made Active in Reports: 11/22/2021
Number of Days to Update: 4

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 05/19/2022
Next Scheduled EDR Contact: 09/05/2022
Data Release Frequency: Annually

MERCED COUNTY:

CUPA MERCED: CUPA Facility List
CUPA facility list.

Date of Government Version: 02/15/2022
Date Data Arrived at EDR: 02/17/2022
Date Made Active in Reports: 05/11/2022
Number of Days to Update: 83

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 05/25/2022
Next Scheduled EDR Contact: 08/29/2022
Data Release Frequency: Varies

MONO COUNTY:

CUPA MONO: CUPA Facility List
CUPA Facility List

Date of Government Version: 02/22/2021
Date Data Arrived at EDR: 03/02/2021
Date Made Active in Reports: 05/19/2021
Number of Days to Update: 78

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 05/19/2022
Next Scheduled EDR Contact: 09/05/2022
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA MONTEREY: CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 10/04/2021
Date Data Arrived at EDR: 10/06/2021
Date Made Active in Reports: 12/29/2021
Number of Days to Update: 84

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 04/04/2022
Next Scheduled EDR Contact: 07/11/2022
Data Release Frequency: Varies

NAPA COUNTY:

LUST NAPA: Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 05/19/2022
Next Scheduled EDR Contact: 09/05/2022
Data Release Frequency: No Update Planned

UST NAPA: Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 09/05/2019
Date Data Arrived at EDR: 09/09/2019
Date Made Active in Reports: 10/31/2019
Number of Days to Update: 52

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 05/19/2022
Next Scheduled EDR Contact: 09/05/2022
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA NEVADA: CUPA Facility List
CUPA facility list.

Date of Government Version: 01/25/2022
Date Data Arrived at EDR: 01/26/2022
Date Made Active in Reports: 04/14/2022
Number of Days to Update: 78

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/08/2022
Data Release Frequency: Varies

ORANGE COUNTY:

IND_SITE ORANGE: List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 01/14/2022
Date Data Arrived at EDR: 02/03/2022
Date Made Active in Reports: 04/14/2022
Number of Days to Update: 70

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 05/02/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Annually

LUST ORANGE: List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 01/14/2022
Date Data Arrived at EDR: 02/04/2022
Date Made Active in Reports: 05/02/2022
Number of Days to Update: 87

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 05/02/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Quarterly

UST ORANGE: List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 01/14/2022
Date Data Arrived at EDR: 02/01/2022
Date Made Active in Reports: 04/18/2022
Number of Days to Update: 76

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 05/03/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Quarterly

PLACER COUNTY:

MS PLACER: Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 05/25/2022
Date Data Arrived at EDR: 05/26/2022
Date Made Active in Reports: 06/01/2022
Number of Days to Update: 6

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 05/25/2022
Next Scheduled EDR Contact: 09/12/2022
Data Release Frequency: Semi-Annually

PLUMAS COUNTY:

CUPA PLUMAS: CUPA Facility List
Plumas County CUPA Program facilities.

Date of Government Version: 03/31/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/26/2019
Number of Days to Update: 64

Source: Plumas County Environmental Health
Telephone: 530-283-6355
Last EDR Contact: 04/14/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

RIVERSIDE COUNTY:

LUST RIVERSIDE: Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 03/31/2022
Date Data Arrived at EDR: 03/31/2022
Date Made Active in Reports: 04/08/2022
Number of Days to Update: 8
Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 03/14/2022
Next Scheduled EDR Contact: 06/27/2022
Data Release Frequency: Quarterly

UST RIVERSIDE: Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 03/31/2022
Date Data Arrived at EDR: 03/31/2022
Date Made Active in Reports: 04/08/2022
Number of Days to Update: 8
Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 03/14/2022
Next Scheduled EDR Contact: 06/27/2022
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

CS SACRAMENTO: Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 06/18/2021
Date Data Arrived at EDR: 09/28/2021
Date Made Active in Reports: 12/14/2021
Number of Days to Update: 77
Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 03/31/2022
Next Scheduled EDR Contact: 07/11/2022
Data Release Frequency: Quarterly

ML SACRAMENTO: Master Hazardous Materials Facility List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 08/02/2021
Date Data Arrived at EDR: 08/04/2021
Date Made Active in Reports: 11/02/2021
Number of Days to Update: 90
Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 03/31/2022
Next Scheduled EDR Contact: 07/11/2022
Data Release Frequency: Quarterly

SAN BENITO COUNTY:

CUPA SAN BENITO: CUPA Facility List
Cupa facility list

Date of Government Version: 04/29/2022
Date Data Arrived at EDR: 04/29/2022
Date Made Active in Reports: 05/05/2022
Number of Days to Update: 6
Source: San Benito County Environmental Health
Telephone: N/A
Last EDR Contact: 04/28/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Varies

SAN BERNARDINO COUNTY:

PERMITS SAN BERNARDINO: Hazardous Material Permits
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 05/12/2022
Date Data Arrived at EDR: 05/12/2022
Date Made Active in Reports: 05/18/2022
Number of Days to Update: 6

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 04/28/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

HMMD SAN DIEGO: Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 02/28/2022
Date Data Arrived at EDR: 02/28/2022
Date Made Active in Reports: 05/25/2022
Number of Days to Update: 86

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 05/31/2022
Next Scheduled EDR Contact: 09/12/2022
Data Release Frequency: Quarterly

LF SAN DIEGO: Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 10/27/2021
Date Data Arrived at EDR: 03/04/2022
Date Made Active in Reports: 05/31/2022
Number of Days to Update: 88

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 04/14/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

SAN DIEGO CO LOP: Local Oversight Program Listing

A listing of all LOP release sites that are or were under the County of San Diego's jurisdiction. Included are closed or transferred cases, open cases, and cases that did not have a case type indicated. The cases without a case type are mostly complaints; however, some of them could be LOP cases.

Date of Government Version: 07/22/2021
Date Data Arrived at EDR: 10/19/2021
Date Made Active in Reports: 01/13/2022
Number of Days to Update: 86

Source: Department of Environmental Health
Telephone: 858-505-6874
Last EDR Contact: 04/18/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

SAN DIEGO CO SAM: Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 05/25/2022
Next Scheduled EDR Contact: 09/12/2022
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

CUPA SAN FRANCISCO CO: CUPA Facility Listing

Cupa facilities

Date of Government Version: 02/03/2022
Date Data Arrived at EDR: 02/04/2022
Date Made Active in Reports: 02/11/2022
Number of Days to Update: 7
Source: San Francisco County Department of Environmental Health
Telephone: 415-252-3896
Last EDR Contact: 04/28/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Varies

LUST SAN FRANCISCO: Local Oversite Facilities
A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10
Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 04/28/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: No Update Planned

UST SAN FRANCISCO: Underground Storage Tank Information
Underground storage tank sites located in San Francisco county.

Date of Government Version: 02/03/2022
Date Data Arrived at EDR: 02/04/2022
Date Made Active in Reports: 05/02/2022
Number of Days to Update: 87
Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 04/28/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Quarterly

SAN FRANCISO COUNTY:

SAN FRANCISCO MAHER: Maher Ordinance Property Listing
a listing of properties that fall within a Maher Ordinance, for all of San Francisco

Date of Government Version: 01/18/2022
Date Data Arrived at EDR: 01/20/2022
Date Made Active in Reports: 04/27/2022
Number of Days to Update: 97
Source: San Francisco Planning
Telephone: 628-652-7483
Last EDR Contact: 05/06/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

SAN JOAQUIN COUNTY:

UST SAN JOAQUIN: San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 06/22/2018
Date Data Arrived at EDR: 06/26/2018
Date Made Active in Reports: 07/11/2018
Number of Days to Update: 15
Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 03/10/2022
Next Scheduled EDR Contact: 06/27/2022
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA SAN LUIS OBISPO: CUPA Facility List
Cupa Facility List.

Date of Government Version: 02/15/2022
Date Data Arrived at EDR: 02/16/2022
Date Made Active in Reports: 05/13/2022
Number of Days to Update: 86
Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 05/12/2022
Next Scheduled EDR Contact: 08/29/2022
Data Release Frequency: Varies

SAN MATEO COUNTY:

BI SAN MATEO: Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 02/20/2020
Date Data Arrived at EDR: 02/20/2020
Date Made Active in Reports: 04/24/2020
Number of Days to Update: 64

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 03/11/2022
Next Scheduled EDR Contact: 06/20/2022
Data Release Frequency: Annually

LUST SAN MATEO: Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 03/29/2019
Date Data Arrived at EDR: 03/29/2019
Date Made Active in Reports: 05/29/2019
Number of Days to Update: 61

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 06/02/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA SANTA BARBARA: CUPA Facility Listing
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28

Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 05/12/2022
Next Scheduled EDR Contact: 08/29/2022
Data Release Frequency: No Update Planned

SANTA CLARA COUNTY:

CUPA SANTA CLARA: Cupa Facility List
Cupa facility list

Date of Government Version: 02/14/2022
Date Data Arrived at EDR: 02/16/2022
Date Made Active in Reports: 05/12/2022
Number of Days to Update: 85

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 05/12/2022
Next Scheduled EDR Contact: 08/29/2022
Data Release Frequency: Varies

HIST LUST SANTA CLARA: HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LUST SANTA CLARA: LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 05/19/2022
Next Scheduled EDR Contact: 09/05/2022
Data Release Frequency: No Update Planned

SAN JOSE HAZMAT: Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 11/03/2020
Date Data Arrived at EDR: 11/05/2020
Date Made Active in Reports: 01/26/2021
Number of Days to Update: 82

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 04/28/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA SANTA CRUZ: CUPA Facility List
CUPA facility listing.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 90

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 05/12/2022
Next Scheduled EDR Contact: 08/29/2022
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA SHASTA: CUPA Facility List
Cupa Facility List.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/19/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 51

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 05/12/2022
Next Scheduled EDR Contact: 08/29/2022
Data Release Frequency: Varies

SOLANO COUNTY:

LUST SOLANO: Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 06/04/2019
Date Data Arrived at EDR: 06/06/2019
Date Made Active in Reports: 08/13/2019
Number of Days to Update: 68

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 05/25/2022
Next Scheduled EDR Contact: 09/12/2022
Data Release Frequency: Quarterly

UST SOLANO: Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 09/15/2021
Date Data Arrived at EDR: 09/16/2021
Date Made Active in Reports: 12/09/2021
Number of Days to Update: 84

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 05/25/2022
Next Scheduled EDR Contact: 09/12/2022
Data Release Frequency: Quarterly

SONOMA COUNTY:

CUPA SONOMA: Cupa Facility List
Cupa Facility list

Date of Government Version: 07/02/2021
Date Data Arrived at EDR: 07/06/2021
Date Made Active in Reports: 07/14/2021
Number of Days to Update: 8

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 03/16/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Varies

LUST SONOMA: Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 06/30/2021
Date Data Arrived at EDR: 06/30/2021
Date Made Active in Reports: 09/24/2021
Number of Days to Update: 86

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 03/16/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Quarterly

STANISLAUS COUNTY:

CUPA STANISLAUS: CUPA Facility List
Cupa facility list

Date of Government Version: 02/08/2022
Date Data Arrived at EDR: 02/10/2022
Date Made Active in Reports: 05/04/2022
Number of Days to Update: 83

Source: Stanislaus County Department of Ennvironmental Protection
Telephone: 209-525-6751
Last EDR Contact: 04/11/2022
Next Scheduled EDR Contact: 07/25/2022
Data Release Frequency: Varies

SUTTER COUNTY:

UST SUTTER: Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 11/23/2021
Date Data Arrived at EDR: 11/29/2021
Date Made Active in Reports: 02/11/2022
Number of Days to Update: 74

Source: Sutter County Environmental Health Services
Telephone: 530-822-7500
Last EDR Contact: 05/25/2022
Next Scheduled EDR Contact: 09/12/2022
Data Release Frequency: Semi-Annually

TEHAMA COUNTY:

CUPA TEHAMA: CUPA Facility List
Cupa facilities

Date of Government Version: 01/13/2021
Date Data Arrived at EDR: 01/14/2021
Date Made Active in Reports: 04/06/2021
Number of Days to Update: 82

Source: Tehama County Department of Environmental Health
Telephone: 530-527-8020
Last EDR Contact: 04/28/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Varies

TRINITY COUNTY:

CUPA TRINITY: CUPA Facility List
Cupa facility list

Date of Government Version: 01/13/2022
Date Data Arrived at EDR: 01/14/2022
Date Made Active in Reports: 04/06/2022
Number of Days to Update: 82

Source: Department of Toxic Substances Control
Telephone: 760-352-0381
Last EDR Contact: 04/18/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

TULARE COUNTY:

CUPA TULARE: CUPA Facility List
Cupa program facilities

Date of Government Version: 04/26/2021
Date Data Arrived at EDR: 04/28/2021
Date Made Active in Reports: 07/13/2021
Number of Days to Update: 76

Source: Tulare County Environmental Health Services Division
Telephone: 559-624-7400
Last EDR Contact: 04/14/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Varies

TUOLUMNE COUNTY:

CUPA TUOLUMNE: CUPA Facility List
Cupa facility list

Date of Government Version: 04/23/2018
Date Data Arrived at EDR: 04/25/2018
Date Made Active in Reports: 06/25/2018
Number of Days to Update: 61

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 04/14/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

VENTURA COUNTY:

BWT VENTURA: Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 12/27/2021
Date Data Arrived at EDR: 01/20/2022
Date Made Active in Reports: 04/08/2022
Number of Days to Update: 78

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 04/18/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Quarterly

LF VENTURA: Inventory of Illegal Abandoned and Inactive Sites
Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 03/23/2022
Next Scheduled EDR Contact: 07/11/2022
Data Release Frequency: No Update Planned

LUST VENTURA: Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 05/04/2022
Next Scheduled EDR Contact: 08/22/2022
Data Release Frequency: No Update Planned

MED WASTE VENTURA: Medical Waste Program List
To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 12/27/2021
Date Data Arrived at EDR: 01/20/2022
Date Made Active in Reports: 04/11/2022
Number of Days to Update: 81

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 04/18/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Quarterly

UST VENTURA: Underground Tank Closed Sites List
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 02/28/2022
Date Data Arrived at EDR: 03/08/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 86

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 06/07/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Quarterly

YOLO COUNTY:

UST YOLO: Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 12/27/2021
Date Data Arrived at EDR: 01/04/2022
Date Made Active in Reports: 03/18/2022
Number of Days to Update: 73

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 03/24/2022
Next Scheduled EDR Contact: 07/11/2022
Data Release Frequency: Annually

YUBA COUNTY:

CUPA YUBA: CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 01/26/2022
Date Data Arrived at EDR: 01/27/2022
Date Made Active in Reports: 04/14/2022
Number of Days to Update: 77

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/08/2022
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 12/03/2021
Date Data Arrived at EDR: 02/11/2022
Date Made Active in Reports: 05/06/2022
Number of Days to Update: 84

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 05/09/2022
Next Scheduled EDR Contact: 08/22/2022
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 04/10/2019
Date Made Active in Reports: 05/16/2019
Number of Days to Update: 36

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 04/07/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/01/2019
Date Data Arrived at EDR: 10/29/2021
Date Made Active in Reports: 01/19/2022
Number of Days to Update: 82

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 04/28/2022
Next Scheduled EDR Contact: 08/08/2022
Data Release Frequency: Quarterly

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 06/30/2018
Date Data Arrived at EDR: 07/19/2019
Date Made Active in Reports: 09/10/2019
Number of Days to Update: 53

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 04/08/2022
Next Scheduled EDR Contact: 07/25/2022
Data Release Frequency: Annually

RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 11/30/2021
Date Made Active in Reports: 02/18/2022
Number of Days to Update: 80

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 05/16/2022
Next Scheduled EDR Contact: 08/29/2022
Data Release Frequency: Annually

WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 06/19/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 76

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 06/03/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Annually

Oil/Gas Pipelines

Source: Endeavor Business Media

Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by Endeavor Business Media. This information is provided on a best effort basis and Endeavor Business Media does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of Endeavor Business Media.

Electric Power Transmission Line Data

Source: Endeavor Business Media

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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:

Source: American Hospital Association, Inc.
Telephone: 312-280-5991

The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing

Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000

A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.
Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.
Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.
Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

JUNIPERO ROAD AND MCCALL BLVD
JUNIPERO RD
MENIFEE, CA 92585

TARGET PROPERTY COORDINATES

Latitude (North):	33.724079 - 33ˆ 43’ 26.68’’
Longitude (West):	117.156241 - 117ˆ 9’ 22.47’’
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	485524.7
UTM Y (Meters):	3731380.5
Elevation:	1461 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	12015913 ROMOLAND, CA
Version Date:	2018

EDR’s GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

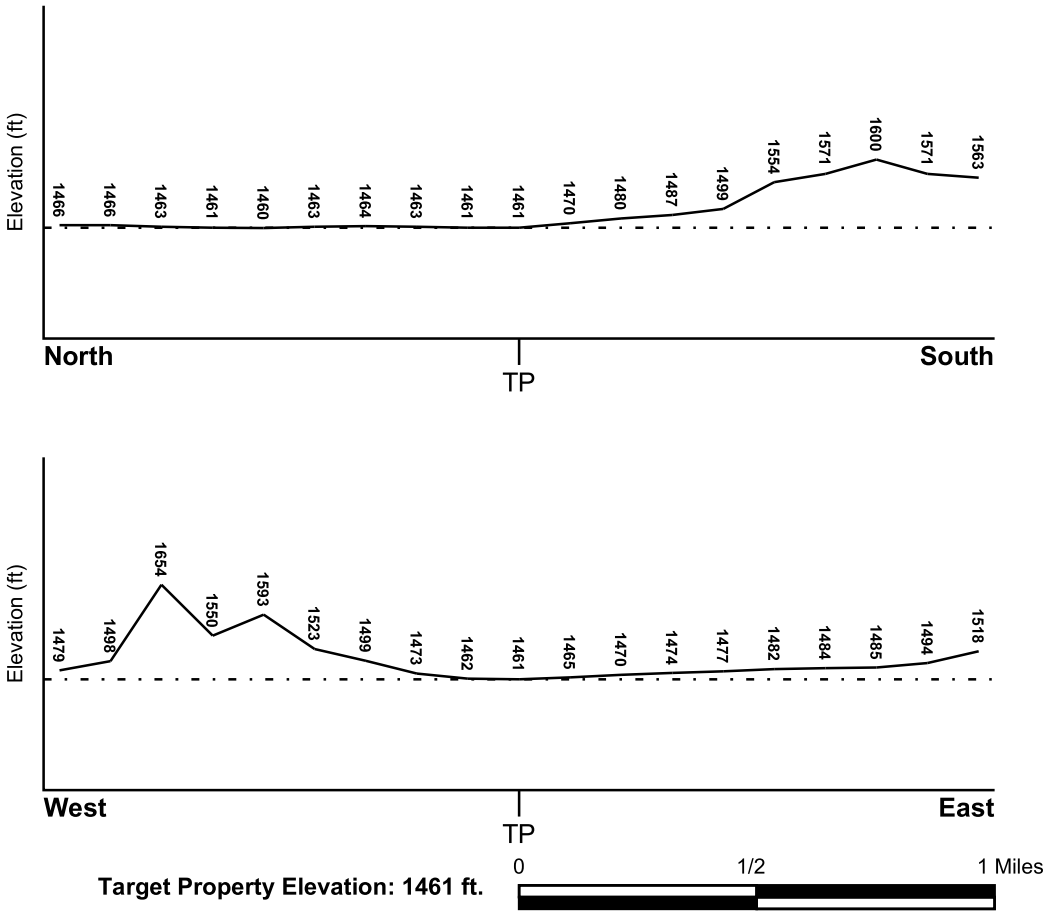
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General NNE

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
06065C2060H	FEMA FIRM Flood data

Additional Panels in search area:	FEMA Source Type
Not Reported	

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
NOT AVAILABLE	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

* ©1996 Site-specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

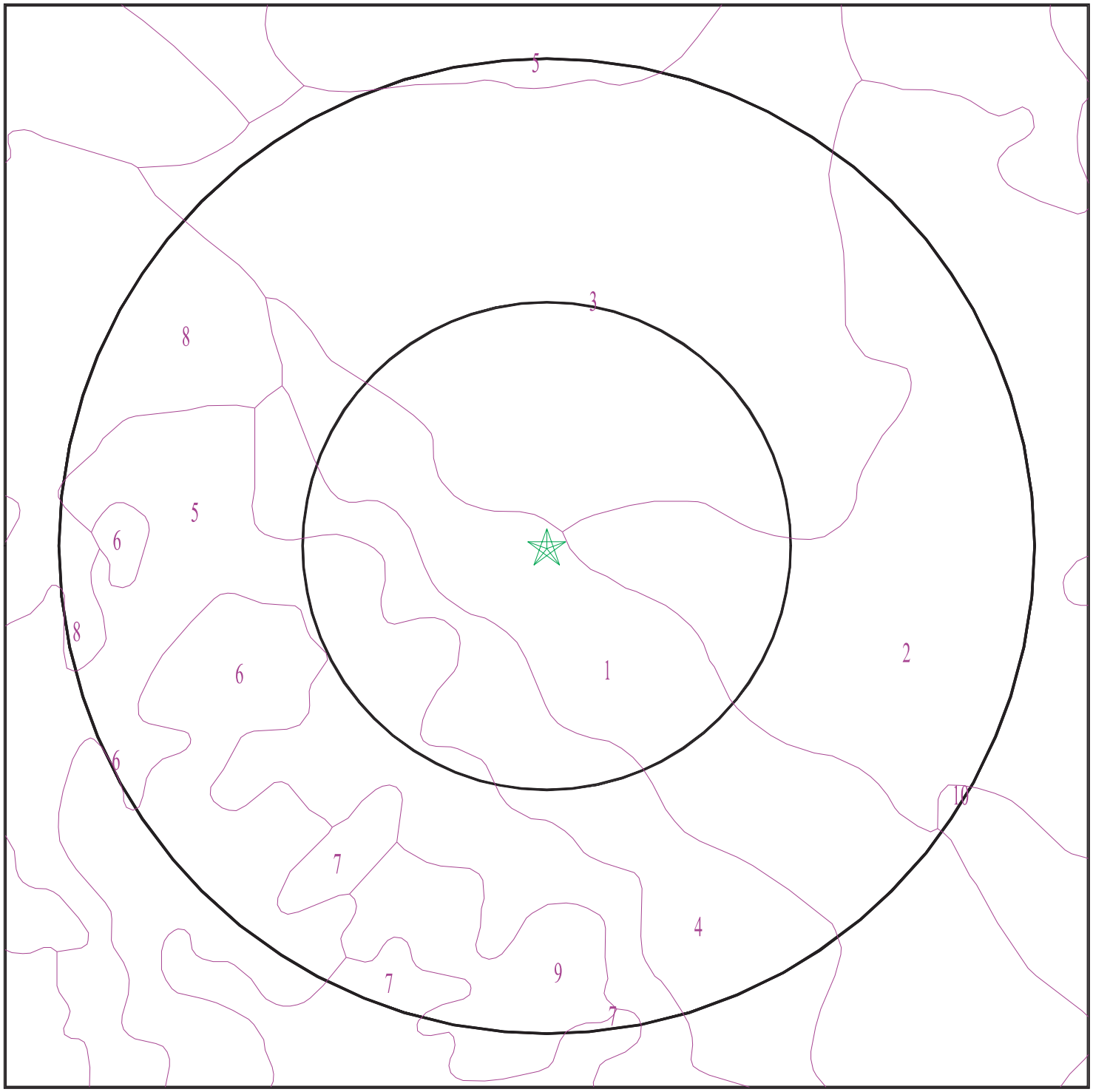
Era:	Mesozoic
System:	Cretaceous
Series:	Cretaceous granitic rocks
Code:	Kg *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Plutonic and Intrusive Rocks

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 7013948.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME:	Junipero Road and McCall Blvd	CLIENT:	Lilburn Corporation
ADDRESS:	Junipero Rd Menifee CA 92585	CONTACT:	Frank Amendola
LAT/LONG:	33.724079 / 117.156241	INQUIRY #:	7013948.2s
		DATE:	June 09, 2022 7:06 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: EXETER

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	16 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4
2	16 inches	37 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4
3	37 inches	50 inches	indurated	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
4	50 inches	59 inches	stratified sandy loam to silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4

Soil Map ID: 2

Soil Component Name: GREENFIELD

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	25 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 6.6
2	25 inches	42 inches	fine sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 6.6

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
3	42 inches	59 inches	loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 6.6
4	59 inches	72 inches	stratified loamy sand to sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 6.6

Soil Map ID: 3

Soil Component Name: EXETER

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	16 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	16 inches	37 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4
3	37 inches	50 inches	indurated	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4
4	50 inches	59 inches	stratified sandy loam to silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4

Soil Map ID: 4

Soil Component Name: EXETER

Soil Surface Texture: sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	16 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4
2	16 inches	37 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4
3	37 inches	50 inches	indurated	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4
4	50 inches	59 inches	stratified sandy loam to silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4

Soil Map ID: 5

Soil Component Name: HANFORD

Soil Surface Texture: coarse sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	coarse sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.8 Min: 5.6
2	7 inches	40 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.8 Min: 5.6
3	40 inches	59 inches	stratified loamy sand to coarse sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.8 Min: 5.6

Soil Map ID: 6

Soil Component Name: Cieneba

Soil Surface Texture: sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Somewhat excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	14 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	Not reported	Max: 0.42 Min: 0	Max: Min:
2	14 inches	22 inches	weathered bedrock	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	Not reported	Max: 0.42 Min: 0	Max: Min:

Soil Map ID: 7

Soil Component Name: MONSERATE

Soil Surface Texture: sandy loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	9 inches	18 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
3	18 inches	44 inches	indurated	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
4	44 inches	57 inches	cemented	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
5	57 inches	70 inches	loamy coarse sand	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6

Soil Map ID: 8

Soil Component Name: MONSERATE

Soil Surface Texture: sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
2	9 inches	27 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
3	27 inches	44 inches	indurated	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
4	44 inches	57 inches	cemented	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
5	57 inches	70 inches	loamy coarse sand	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6

Soil Map ID: 9

Soil Component Name: MONSERATE

Soil Surface Texture: sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
2	9 inches	27 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
3	27 inches	44 inches	indurated	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
4	44 inches	57 inches	cemented	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
5	57 inches	70 inches	loamy coarse sand	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6

Soil Map ID: 10

Soil Component Name: GARRETSON

Soil Surface Texture: very fine sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	very fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 7.8 Min: 6.1
2	9 inches	59 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 7.8 Min: 6.1

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A2	USGS40000137493	1/2 - 1 Mile NW
B5	USGS40000137521	1/2 - 1 Mile NE
C11	USGS40000137404	1/2 - 1 Mile ESE

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
C12	USGS40000137392	1/2 - 1 Mile ESE
C13	USGS40000137393	1/2 - 1 Mile ESE
C14	USGS40000137394	1/2 - 1 Mile ESE
D18	USGS40000137484	1/2 - 1 Mile ENE
E21	USGS40000137600	1/2 - 1 Mile NW

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

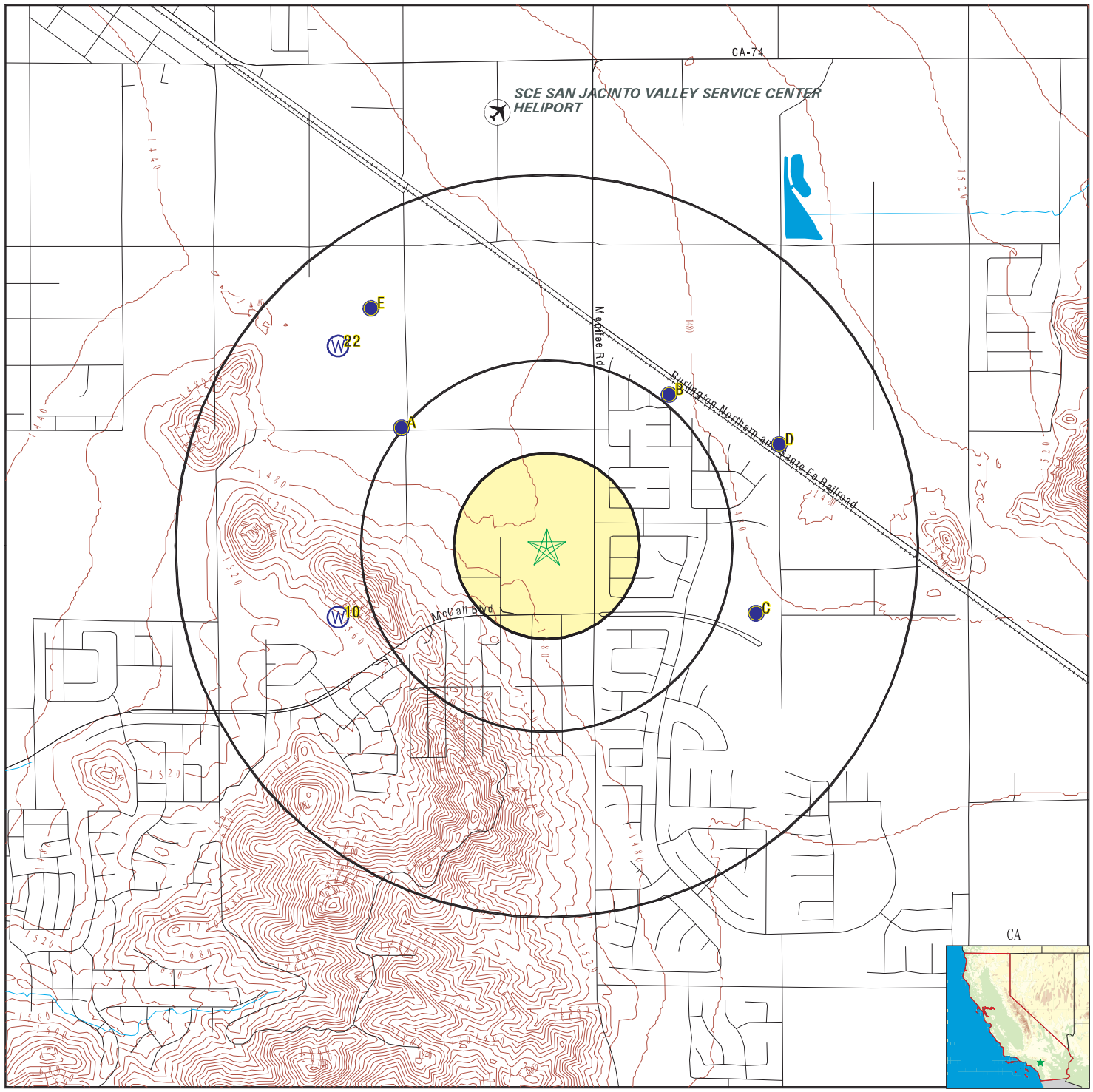
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A1	CAUSGSN00015525	1/4 - 1/2 Mile NW
B3	CADWR9000005198	1/2 - 1 Mile NE
A4	CADWR9000005185	1/2 - 1 Mile NW
C6	CADWR9000005158	1/2 - 1 Mile ESE
C7	CADWR9000005153	1/2 - 1 Mile ESE
C8	CADWR9000005152	1/2 - 1 Mile ESE
C9	CADWR9000005151	1/2 - 1 Mile ESE
10	CADWR0000012646	1/2 - 1 Mile WSW
C15	CAUSGSN00001122	1/2 - 1 Mile ESE
C16	CAUSGSN00016927	1/2 - 1 Mile ESE
C17	CAUSGSN00017426	1/2 - 1 Mile ESE
D19	CAUSGSN00009635	1/2 - 1 Mile ENE
D20	CADWR9000005181	1/2 - 1 Mile ENE
22	CADWR0000036959	1/2 - 1 Mile NW
E23	CADWR9000005235	1/2 - 1 Mile NW

PHYSICAL SETTING SOURCE MAP - 7013948.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Airports
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons

- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME:	Junipero Road and McCall Blvd	CLIENT:	Lilburn Corporation
ADDRESS:	Junipero Rd Menifee CA 92585	CONTACT:	Frank Amendola
LAT/LONG:	33.724079 / 117.156241	INQUIRY #:	7013948.2s
		DATE:	June 09, 2022 7:06 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

A1
NW
1/4 - 1/2 Mile
Lower

CA WELLS **CAUSGSN00015525**

Well ID:	USGS-334343117094401	Well Type:	UNK
Source:	United States Geological Survey		
Other Name:	USGS-334343117094401	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=USGSNEW&samp_date=&global_id=&assigned_name=USGS-334343117094401&store_num=		
GeoTracker Data:	Not Reported		

A2
NW
1/2 - 1 Mile
Lower

FED USGS **USGS40000137493**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	005S003W14P001S	Type:	Well
Description:	WELL DEPTH IS AN APPROXIMATION		
HUC:	18070202	Drainage Area:	Not Reported
Drainage Area Units:	Not Reported	Contrib Drainage Area:	Not Reported
Contrib Drainage Area Unts:	Not Reported	Aquifer:	California Coastal Basin aquifers
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	250
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

B3
NE
1/2 - 1 Mile
Higher

CA WELLS **CADWR9000005198**

State Well #:	05S03W13N001S	Station ID:	28640
Well Name:	Not Reported	Basin Name:	San Jacinto
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

A4
NW
1/2 - 1 Mile
Lower

CA WELLS **CADWR9000005185**

State Well #:	Not Reported	Station ID:	48342
Well Name:	EMWD12774	Basin Name:	San Jacinto
Well Use:	Irrigation	Well Type:	Single Well
Well Depth:	0	Well Completion Rpt #:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database	EDR ID Number
FED USGS	USGS40000137521

B5
NE
1/2 - 1 Mile
Higher

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	005S003W13N001S	Type:	Well
Description:	ORIG DPTH 433 SOUNDED DEPTH 142.0 FT AS OF 5/22/95		
HUC:	18070202	Drainage Area:	Not Reported
Drainage Area Units:	Not Reported	Contrib Drainage Area:	Not Reported
Contrib Drainage Area Unts:	Not Reported	Aquifer:	California Coastal Basin aquifers
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	19770510	Well Depth:	142
Well Depth Units:	ft	Well Hole Depth:	433
Well Hole Depth Units:	ft		

Ground water levels,Number of Measurements:	3	Level reading date:	1995-09-28
Feet below surface:	52.10	Feet to sea level:	Not Reported
Note:	Not Reported		

Level reading date:	1995-06-23	Feet below surface:	52.01
Feet to sea level:	Not Reported		
Note:	A nearby site that taps the same aquifer was being pumped.		

Level reading date:	1995-05-22	Feet below surface:	52.02
Feet to sea level:	Not Reported	Note:	Not Reported

C6
ESE
1/2 - 1 Mile
Higher

Database	EDR ID Number
CA WELLS	CADWR9000005158

State Well #:	05S03W24F001S	Station ID:	27788
Well Name:	Not Reported	Basin Name:	San Jacinto
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

C7
ESE
1/2 - 1 Mile
Higher

Database	EDR ID Number
CA WELLS	CADWR9000005153

State Well #:	05S03W24F004S	Station ID:	6992
Well Name:	Not Reported	Basin Name:	San Jacinto
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

C8
ESE
1/2 - 1 Mile
Higher

CA WELLS **CADWR9000005152**

State Well #:	05S03W24F003S	Station ID:	27789
Well Name:	Not Reported	Basin Name:	San Jacinto
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

C9
ESE
1/2 - 1 Mile
Higher

CA WELLS **CADWR9000005151**

State Well #:	05S03W24F002S	Station ID:	6991
Well Name:	Not Reported	Basin Name:	San Jacinto
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

10
WSW
1/2 - 1 Mile
Higher

CA WELLS **CADWR0000012646**

Well ID:	05S03W23L001S	Well Type:	UNK
Source:	Department of Water Resources		
Other Name:	05S03W23L001S	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=05S03W23L001S&store_num=		
GeoTracker Data:	Not Reported		

C11
ESE
1/2 - 1 Mile
Higher

FED USGS **USGS40000137404**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	005S003W24F001S	Type:	Well
Description:	Not Reported	HUC:	18070202
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	19931008	Well Depth:	680.9
Well Depth Units:	ft	Well Hole Depth:	690
Well Hole Depth Units:	ft		

Ground water levels,Number of Measurements:	5	Level reading date:	1995-06-23
Feet below surface:	92.40	Feet to sea level:	Not Reported
Note:	Not Reported		

Level reading date:	1994-12-15	Feet below surface:	69.21
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1994-11-18	Feet below surface:	76.03
Feet to sea level:	Not Reported	Note:	The site had been pumped recently.
Level reading date:	1994-02-10	Feet below surface:	62.86
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1993-12-03	Feet below surface:	68.34
Feet to sea level:	Not Reported	Note:	Not Reported

C12
ESE
1/2 - 1 Mile
Higher

FED USGS **USGS40000137392**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	005S003W24F002S	Type:	Well
Description:	Not Reported	HUC:	18070202
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	19930930	Well Depth:	691
Well Depth Units:	ft	Well Hole Depth:	729
Well Hole Depth Units:	ft		

Ground water levels,Number of Measurements:	6	Level reading date:	1995-09-13
Feet below surface:	75.11	Feet to sea level:	Not Reported
Note:	Not Reported		
Level reading date:	1995-06-23	Feet below surface:	65.77
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1994-12-15	Feet below surface:	69.25
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1994-11-18	Feet below surface:	76.47
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1994-02-10	Feet below surface:	66.58
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1993-12-03	Feet below surface:	64.22
Feet to sea level:	Not Reported	Note:	Not Reported

C13
ESE
1/2 - 1 Mile
Higher

FED USGS **USGS40000137393**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	005S003W24F003S	Type:	Well
Description:	Not Reported	HUC:	18070202
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported

Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	19930930	Well Depth:	403
Well Depth Units:	ft	Well Hole Depth:	729
Well Hole Depth Units:	ft		

Ground water levels,Number of Measurements:	6	Level reading date:	1995-09-13
Feet below surface:	99.99	Feet to sea level:	Not Reported
Note:	Not Reported		
Level reading date:	1995-06-23	Feet below surface:	108.69
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1994-12-15	Feet below surface:	72.76
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1994-11-18	Feet below surface:	83.52
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1994-02-10	Feet below surface:	68.21
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1993-12-03	Feet below surface:	69.90
Feet to sea level:	Not Reported	Note:	Not Reported

C14
ESE
1/2 - 1 Mile
Higher

FED USGS **USGS40000137394**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	005S003W24F004S	Type:	Well
Description:	Not Reported	HUC:	18070202
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	19930930	Well Depth:	155.1
Well Depth Units:	ft	Well Hole Depth:	729
Well Hole Depth Units:	ft		

Ground water levels,Number of Measurements:	6	Level reading date:	1995-09-13
Feet below surface:	56.86	Feet to sea level:	Not Reported
Note:	Not Reported		
Level reading date:	1995-06-23	Feet below surface:	57.00
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1994-12-15	Feet below surface:	57.06
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1994-11-18	Feet below surface:	57.44
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1994-02-10	Feet below surface:	57.40
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1993-12-03	Feet below surface:	58.06

Feet to sea level:	Not Reported	Note:	Not Reported

C15
ESE **CA WELLS** **CAUSGSN00001122**
1/2 - 1 Mile
Higher

Well ID:	USGS-334317117084303	Well Type:	UNK
Source:	United States Geological Survey		
Other Name:	USGS-334317117084303	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=USGSNEW&samp_date=&global_id=&assigned_name=USGS-334317117084303&store_num=		
GeoTracker Data:	Not Reported		

C16
ESE **CA WELLS** **CAUSGSN00016927**
1/2 - 1 Mile
Higher

Well ID:	USGS-334317117084301	Well Type:	UNK
Source:	United States Geological Survey		
Other Name:	USGS-334317117084301	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=USGSNEW&samp_date=&global_id=&assigned_name=USGS-334317117084301&store_num=		
GeoTracker Data:	Not Reported		

C17
ESE **CA WELLS** **CAUSGSN00017426**
1/2 - 1 Mile
Higher

Well ID:	USGS-334317117084302	Well Type:	UNK
Source:	United States Geological Survey		
Other Name:	USGS-334317117084302	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=USGSNEW&samp_date=&global_id=&assigned_name=USGS-334317117084302&store_num=		
GeoTracker Data:	Not Reported		

D18
ENE **FED USGS** **USGS40000137484**
1/2 - 1 Mile
Higher

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	005S003W24C001S	Type:	Well
Description:	Not Reported	HUC:	18070202
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	19770525	Well Depth:	505
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	1	Level reading date:	1994-01-04
Feet below surface:	72.56	Feet to sea level:	Not Reported
Note:	Not Reported		

D19
ENE **CA WELLS** **CAUSGSN00009635**
1/2 - 1 Mile
Higher

Well ID:	USGS-334341117084101	Well Type:	UNK
Source:	United States Geological Survey		
Other Name:	USGS-334341117084101	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=USGSNEW&samp_date=&global_id=&assigned_name=USGS-334341117084101&store_num=		
GeoTracker Data:	Not Reported		

D20
ENE **CA WELLS** **CADWR9000005181**
1/2 - 1 Mile
Higher

State Well #:	05S03W24C001S	Station ID:	6990
Well Name:	EMWD11157	Basin Name:	San Jacinto
Well Use:	Irrigation	Well Type:	Single Well
Well Depth:	415	Well Completion Rpt #:	Not Reported

E21
NW **FED USGS** **USGS40000137600**
1/2 - 1 Mile
Lower

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	005S003W14L001S	Type:	Well
Description:	Not Reported	HUC:	18070202
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	19800120	Well Depth:	200
Well Depth Units:	ft	Well Hole Depth:	200
Well Hole Depth Units:	ft		

Ground water levels,Number of Measurements:	1	Level reading date:	1995-06-05
Feet below surface:	71.83	Feet to sea level:	Not Reported
Note:	Not Reported		

22
NW **CA WELLS** **CADWR0000036959**
1/2 - 1 Mile
Lower

Well ID:	05S03W14P001S	Well Type:	UNK
Source:	Department of Water Resources		
Other Name:	05S03W14P001S	GAMA PFAS Testing:	Not Reported

Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=05S03W14P001S&store_num=

GeoTracker Data: Not Reported

E23
NW
1/2 - 1 Mile
Lower

CA WELLS **CADWR9000005235**

State Well #:	05S03W14L001S	Station ID:	6313
Well Name:	Not Reported	Basin Name:	San Jacinto
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
92585	6	0

Federal EPA Radon Zone for RIVERSIDE County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for RIVERSIDE COUNTY, CA

Number of sites tested: 12

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.117 pCi/L	100%	0%	0%
Living Area - 2nd Floor	0.450 pCi/L	100%	0%	0%
Basement	1.700 pCi/L	100%	0%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

OTHER STATE DATABASE INFORMATION

Groundwater Ambient Monitoring & Assessment Program
State Water Resources Control Board
Telephone: 916-341-5577
The GAMA Program is Californias comprehensive groundwater quality monitoring program. GAMA collects data by testing the untreated, raw water in different types of wells for naturally-occurring and man-made chemicals. The GAMA data includes Domestic, Monitoring and Municipal well types from the following sources, Department of Water Resources, Department of Heath Services, EDF, Agricultural Lands, Lawrence Livermore National Laboratory, Department of Pesticide Regulation, United States Geological Survey, Groundwater Ambient Monitoring and Assessment Program and Local Groundwater Projects.

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Public Health
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

California Oil and Gas Well Locations
Source: Dept of Conservation, Geologic Energy Management Division
Telephone: 916-323-1779
Oil and Gas well locations in the state.

California Earthquake Fault Lines
Source: California Division of Mines and Geology
The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

RADON

State Database: CA Radon
Source: Department of Public Health
Telephone: 916-210-8558
Radon Database for California

PHYSICAL SETTING SOURCE RECORDS SEARCHED

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

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APPENDIX E-1
VAPOR ENCROACHMENT SCREENING

Junipero Road and McCall Blvd
Junipero Rd
Menifee, CA 92585

Inquiry Number: 7013948.2s
June 10, 2022

EDR Vapor Encroachment Screen

Prepared using EDR's Vapor Encroachment Worksheet

EDR® Environmental Data Resources Inc

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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Record Sources and Currency	GR-1

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by EDR. The report was designed to assist parties seeking to meet the search requirements of the ASTM Standard Practice for Assessment of Vapor Encroachment into Structures on Property Involved in Real Estate Transactions (E 2600).

STANDARD ENVIRONMENTAL RECORDS	Default Area of Concern (Miles)*	property	1/10	> 1/10
Lists of Federal NPL (Superfund) sites	1.0	0	0	0
Lists of Federal Delisted NPL sites	1.0	0	0	0
Lists of Federal sites subject to CERCLA removals and CERCLA orders	0.5	0	0	0
Lists of Federal CERCLA sites with NFRAP	0.5	0	0	0
Lists of Federal RCRA facilities undergoing Corrective Action	1.0	0	0	0
Lists of Federal RCRA TSD facilities	0.5	0	0	0
Lists of Federal RCRA generators	0.25	0	0	0
Federal institutional controls / engineering controls registries	0.5	0	0	0
Federal ERNS list	0.001	0	0	-
Lists of state- and tribal (Superfund) equivalent sites	1.0	0	0	0
Lists of state- and tribal hazardous waste facilities	1.0	0	0	2
Lists of state and tribal landfills and solid waste disposal facilities	0.5	0	0	0
Lists of state and tribal leaking storage tanks	0.5	0	0	0
Lists of state and tribal registered storage tanks	0.25	0	0	0
State and tribal institutional control / engineering control registries	not searched	-	-	-
Lists of state and tribal voluntary cleanup sites	0.5	0	0	0
Lists of state and tribal brownfield sites	0.5	0	0	0

ADDITIONAL ENVIRONMENTAL RECORDS				
Local Brownfield lists	0.5	0	0	0
Local Lists of Landfill / Solid Waste Disposal Sites	0.5	0	0	0
Local Lists of Hazardous waste / Contaminated Sites	1.0	0	0	2
Local Lists of Registered Storage Tanks	0.25	0	0	0
Local Land Records	0.5	0	0	0
Records of Emergency Release Reports	0.5	0	0	0
Other Ascertainable Records	1.0	0	0	0

EDR HIGH RISK HISTORICAL RECORDS				
EDR Exclusive Records	1.0	0	0	0
Exclusive Recovered Govt. Archives	0.001	0	0	-

EXECUTIVE SUMMARY

EDR RECOVERED GOVERNMENT ARCHIVES

EDR Exclusive Records	1.0	0	0	0
Exclusive Recovered Govt. Archives	0.001	0	0	-

*The Default Area of Concern may be adjusted by the environmental professional using experience and professional judgement. Each category may include several databases, and each database may have a different distance. A list of individual databases is provided at the back of this report.

EXECUTIVE SUMMARY

TARGET PROPERTY INFORMATION

ADDRESS

JUNIPERO ROAD AND MCCALL BLVD
JUNIPERO RD
MENIFEE, CA 92585

COORDINATES

Latitude (North):	33.724079 - 33° 43′ 26.684875″
Longitude (West):	117.156241 - 117° 9′ 22.472534″
Elevation:	1461 ft. above sea level

EXECUTIVE SUMMARY

SEARCH RESULTS

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Name	Address	Dist/Dir	Map ID	Page
MENIFEE VALLEY RANCH SCHOOL NO. 1	MCCALL BOULEVARD/MENIFEE LOOP W	1/10 - 1/3 SE	▲ 1	8
ENVIROSTOR: ENVIROSTOR SCH: SCH				
MCCALL MESA K-8 SCHOOL	MCCALL BOULEVARD/JUNIPERO ROAD	1/10 - 1/3 SSW	▲ 2	11
ENVIROSTOR: ENVIROSTOR SCH: SCH				

ADDITIONAL ENVIRONMENTAL RECORDS

Name	Address	Dist/Dir	Map ID	Page
MENIFEE VALLEY RANCH SCHOOL NO. 1	MCCALL BOULEVARD/MENIFEE LOOP W	1/10 - 1/3 SE	▲ 1	8
ENVIROSTOR: ENVIROSTOR SCH: SCH				
MCCALL MESA K-8 SCHOOL	MCCALL BOULEVARD/JUNIPERO ROAD	1/10 - 1/3 SSW	▲ 2	11
ENVIROSTOR: ENVIROSTOR SCH: SCH				

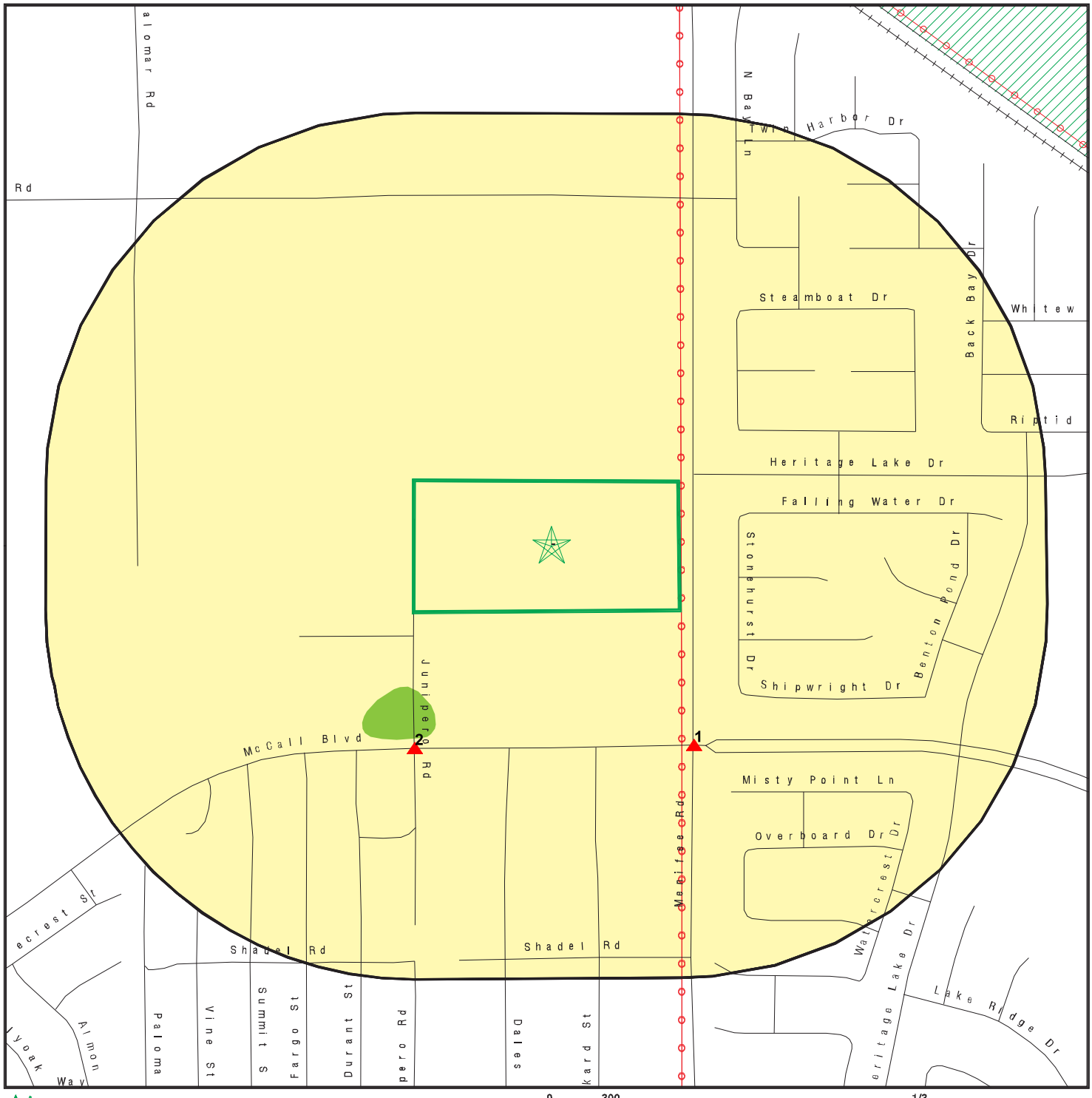
EDR HIGH RISK HISTORICAL RECORDS

Name	Address	Dist/Dir	Map ID	Page
Not Reported				

EDR RECOVERED GOVERNMENT ARCHIVES

Name	Address	Dist/Dir	Map ID	Page
Not Reported				

PRIMARY MAP - 7013948.2S



0 300 1/3 1/2 Miles

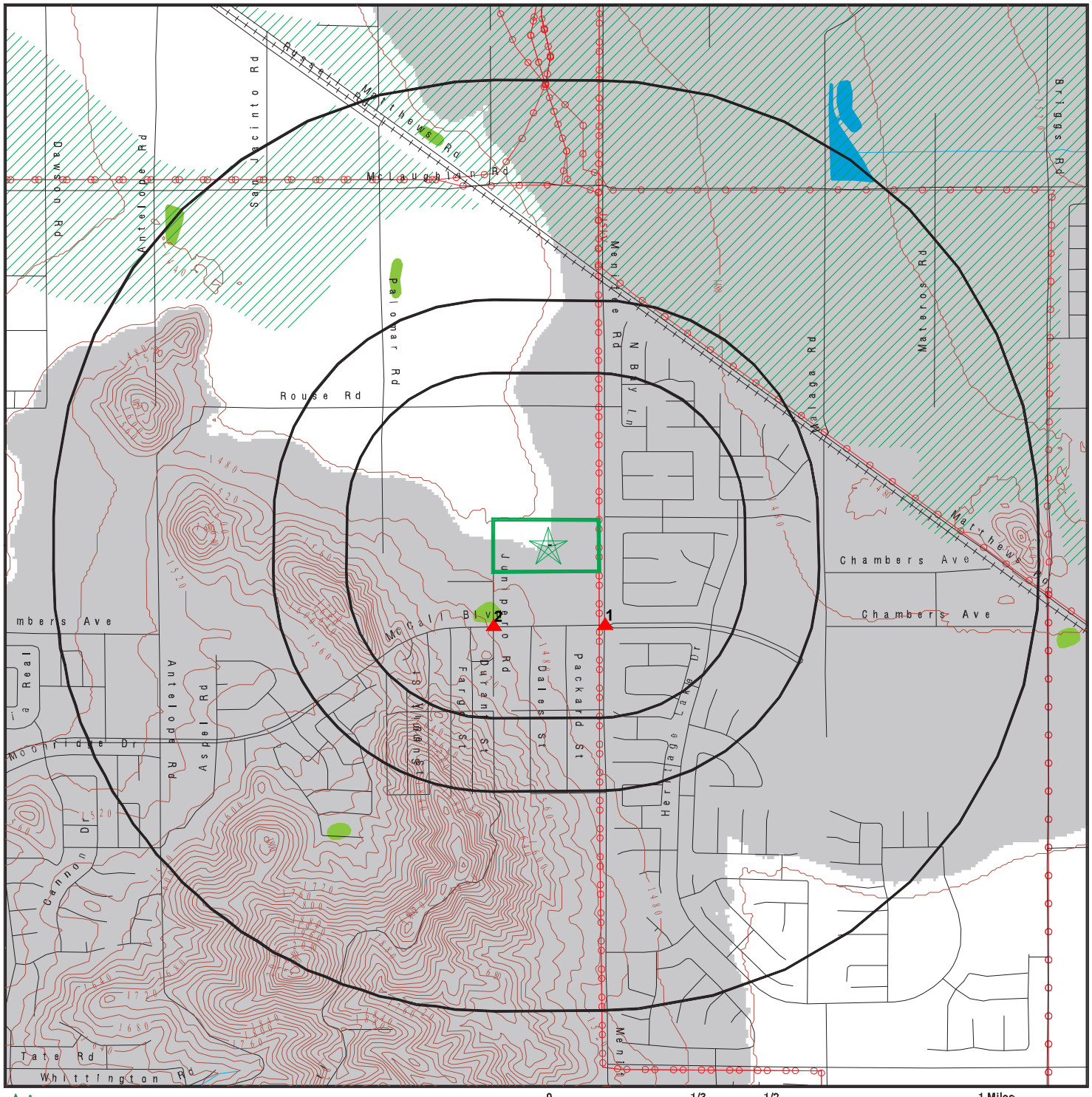
- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Junipero Road and McCall Blvd	CLIENT: Lilburn Corporation
ADDRESS: Junipero Rd Menifee CA 92585	CONTACT: Frank Amendola
LAT/LONG: 33.724079 / 117.156241	INQUIRY #: 7013948.2s DATE: June 09, 2022 7:06 pm

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SECONDARY MAP - 7013948.2S



0 1/3 1/2 1 Miles

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- National Wetland Inventory
- State Wetlands
- Upgradient Area
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	Junipero Road and McCall Blvd	CLIENT:	Lilburn Corporation
ADDRESS:	Junipero Rd Menifee CA 92585	CONTACT:	Frank Amendola
LAT/LONG:	33.724079 / 117.156241	INQUIRY #:	7013948.2s
		DATE:	June 09, 2022 7:05 pm

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MAP FINDINGS

LEGEND

FACILITY NAME **FACILITY ADDRESS, CITY, ST, ZIP**		EDR SITE ID NUMBER
◆ **MAP ID#**	Direction Distance Range (Distance feet / miles) Relative Elevation Feet Above Sea Level	ASTM 2600 Record Sources found in this report. Each database searched has been assigned to one or more categories. For detailed information about categorization, see the section of the report Records Searched and Currency.
Worksheet: **Comments:** Comments may be added on the online Vapor Encroachment Worksheet.		

DATABASE ACRONYM: Applicable categories (A hoverbox with database description).

MENIFEE VALLEY RANCH SCHOOL NO. 1 MCCALL BOULEVARD/MENIFEE LOOP W, ROMOLAND, CA, 92585		S106044339
▲ 1	SE 1/10 - 1/3 (659 ft. / 0.125 mi.) 7 ft. Higher Elevation 1468 ft. Above Sea Level	Lists of state- and tribal hazardous waste facilities Local Lists of Hazardous waste / Contaminated Sites

Worksheet:

ENVIROSTOR: Lists of state- and tribal hazardous waste facilities

Name:	MENIFEE VALLEY RANCH SCHOOL NO. 1
Address:	MCCALL BOULEVARD/MENIFEE LOOP W
City,State,Zip:	ROMOLAND, CA 92585
Facility ID:	33010076
Status:	No Further Action
Status Date:	12/10/2004
Site Code:	404479
Site Type:	School Investigation
Site Type Detailed:	School
Acres:	15
NPL:	NO
Regulatory Agencies:	DTSC
Lead Agency:	DTSC
Program Manager:	Amit Pathak
Supervisor:	Shahir Haddad
Division Branch:	Southern California Schools & Brownfields Outreach
Assembly:	67
Senate:	23
Special Program:	Not Reported
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	School District
Latitude:	33.7214
Longitude:	-117.1540

MENIFEE VALLEY RANCH SCHOOL NO. 1, MCCALL BOULEVARD/MENIFEE LOOP W, ROMOLAND, CA 92585 (Continued)

APN:	NONE SPECIFIED
Past Use:	AGRICULTURAL - ROW CROPS
Potential COC:	Arsenic DDD DDE DDT
Confirmed COC:	NONE SPECIFIED
Potential Description:	SOIL
Alias Name:	MENIFEE VALLEY RANCH SCHOOL NO. 1
Alias Type:	Alternate Name
Alias Name:	ROMOLAND ELEMENTARY SCHOOL DISTRICT
Alias Type:	Alternate Name
Alias Name:	ROMOLAND SD-PRPSD MNIFEE VLY RNCH SCL #1
Alias Type:	Alternate Name
Alias Name:	404479
Alias Type:	Project Code (Site Code)
Alias Name:	33010076
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not Reported
Completed Document Type:	Cost Recovery Closeout Memo
Completed Date:	12/10/2004
Comments:	Not Reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not Reported
Completed Document Type:	Environmental Oversight Agreement
Completed Date:	09/18/2003
Comments:	Not Reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not Reported
Completed Document Type:	Preliminary Endangerment Assessment Report
Completed Date:	09/24/2004
Comments:	Not Reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not Reported
Completed Document Type:	Preliminary Endangerment Assessment Workplan
Completed Date:	04/21/2004
Comments:	Not Reported
Future Area Name:	Not Reported
Future Sub Area Name:	Not Reported
Future Document Type:	Not Reported
Future Due Date:	Not Reported
Schedule Area Name:	Not Reported
Schedule Sub Area Name:	Not Reported
Schedule Document Type:	Not Reported
Schedule Due Date:	Not Reported
Schedule Revised Date:	Not Reported

SCH: Local Lists of Hazardous waste / Contaminated Sites

MENIFEE VALLEY RANCH SCHOOL NO. 1, MCCALL BOULEVARD/MENIFEE LOOP W, ROMOLAND, CA 92585 (Continued)

Name:	MENIFEE VALLEY RANCH SCHOOL NO. 1
Address:	MCCALL BOULEVARD/MENIFEE LOOP W
City,State,Zip:	ROMOLAND, CA 92585
Facility ID:	33010076
Site Type:	School Investigation
Site Type Detail:	School
Site Mgmt. Req.:	NONE SPECIFIED
Acres:	15
National Priorities List:	NO
Cleanup Oversight Agencies:	DTSC
Lead Agency:	DTSC
Lead Agency Description:	* DTSC
Project Manager:	Amit Pathak
Supervisor:	Shahir Haddad
Division Branch:	Southern California Schools & Brownfields Outreach
Site Code:	404479
Assembly:	67
Senate:	23
Special Program Status:	Not Reported
Status:	No Further Action
Status Date:	12/10/2004
Restricted Use:	NO
Funding:	School District
Latitude:	33.7214
Longitude:	-117.1540
APN:	NONE SPECIFIED
Past Use:	AGRICULTURAL - ROW CROPS
Potential COC:	Arsenic, DDD, DDE, DDT
Confirmed COC:	NONE SPECIFIED
Potential Description:	SOIL
Alias Name:	MENIFEE VALLEY RANCH SCHOOL NO. 1
Alias Type:	Alternate Name
Alias Name:	ROMOLAND ELEMENTARY SCHOOL DISTRICT
Alias Type:	Alternate Name
Alias Name:	ROMOLAND SD-PRPSD MNIFEE VLY RNCH SCL #1
Alias Type:	Alternate Name
Alias Name:	404479
Alias Type:	Project Code (Site Code)
Alias Name:	33010076
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not Reported
Completed Document Type:	Cost Recovery Closeout Memo
Completed Date:	12/10/2004
Comments:	Not Reported
Completed Area Name:	PROJECT WIDE

MENIFEE VALLEY RANCH SCHOOL NO. 1, MCCALL BOULEVARD/MENIFEE LOOP W, ROMOLAND, CA 92585 (Continued)

Completed Sub Area Name:	Not Reported
Completed Document Type:	Environmental Oversight Agreement
Completed Date:	09/18/2003
Comments:	Not Reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not Reported
Completed Document Type:	Preliminary Endangerment Assessment Report
Completed Date:	09/24/2004
Comments:	Not Reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not Reported
Completed Document Type:	Preliminary Endangerment Assessment Workplan
Completed Date:	04/21/2004
Comments:	Not Reported
Future Area Name:	Not Reported
Future Sub Area Name:	Not Reported
Future Document Type:	Not Reported
Future Due Date:	Not Reported
Schedule Area Name:	Not Reported
Schedule Sub Area Name:	Not Reported
Schedule Document Type:	Not Reported
Schedule Due Date:	Not Reported
Schedule Revised Date:	Not Reported

MCCALL MESA K-8 SCHOOL MCCALL BOULEVARD/JUNIPERO ROAD, ROMOLAND, CA, 92586			S105628773
▲ 2	SSW 1/10 - 1/3	(661 ft. / 0.125 mi.)	Lists of state- and tribal hazardous waste facilities Local Lists of Hazardous waste / Contaminated Sites
	36 ft. Higher Elevation	1497 ft. Above Sea Level	

Worksheet:

ENVIROSTOR: Lists of state- and tribal hazardous waste facilities

Name:	MCCALL MESA K-8 SCHOOL
Address:	MCCALL BOULEVARD/JUNIPERO ROAD
City,State,Zip:	ROMOLAND, CA 92586
Facility ID:	33010066
Status:	No Further Action
Status Date:	04/18/2003
Site Code:	404388
Site Type:	School Investigation
Site Type Detailed:	School
Acres:	30.04
NPL:	NO
Regulatory Agencies:	SMBRP
Lead Agency:	SMBRP
Program Manager:	Not Reported

MCCALL MESA K-8 SCHOOL, MCCALL BOULEVARD/JUNIPERO ROAD, ROMOLAND, CA 92586 (Continued)

Supervisor:	Javier Hinojosa
Division Branch:	Southern California Schools & Brownfields Outreach
Assembly:	67
Senate:	23
Special Program:	Not Reported
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	School District
Latitude:	33.71149
Longitude:	-117.1956
APN:	NONE SPECIFIED
Past Use:	AGRICULTURAL - ROW CROPS
Potential COC:	Lead Zinc
Confirmed COC:	30013-NO 30594-NO
Potential Description:	SOIL, SV
Alias Name:	MCCALL MESA K-8 SCHOOL
Alias Type:	Alternate Name
Alias Name:	ROMOLAND ELEMENTARY SCHOOL DISTRICT
Alias Type:	Alternate Name
Alias Name:	ROMOLAND SD-MCCALL-MESA K-8
Alias Type:	Alternate Name
Alias Name:	404388
Alias Type:	Project Code (Site Code)
Alias Name:	33010066
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not Reported
Completed Document Type:	Cost Recovery Closeout Memo
Completed Date:	04/18/2003
Comments:	Not Reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not Reported
Completed Document Type:	Environmental Oversight Agreement
Completed Date:	10/28/2002
Comments:	Not Reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not Reported
Completed Document Type:	Preliminary Endangerment Assessment Report
Completed Date:	04/17/2003
Comments:	Not Reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not Reported
Completed Document Type:	Phase 1
Completed Date:	09/27/2002
Comments:	Not Reported
Completed Area Name:	PROJECT WIDE

MCCALL MESA K-8 SCHOOL, MCCALL BOULEVARD/JUNIPERO ROAD, ROMOLAND, CA 92586 (Continued)

Completed Sub Area Name:	Not Reported
Completed Document Type:	Technical Report
Completed Date:	12/24/2002
Comments:	Not Reported
Future Area Name:	Not Reported
Future Sub Area Name:	Not Reported
Future Document Type:	Not Reported
Future Due Date:	Not Reported
Schedule Area Name:	Not Reported
Schedule Sub Area Name:	Not Reported
Schedule Document Type:	Not Reported
Schedule Due Date:	Not Reported
Schedule Revised Date:	Not Reported

SCH: Local Lists of Hazardous waste / Contaminated Sites

Name:	MCCALL MESA K-8 SCHOOL
Address:	MCCALL BOULEVARD/JUNIPERO ROAD
City,State,Zip:	ROMOLAND, CA 92586
Facility ID:	33010066
Site Type:	School Investigation
Site Type Detail:	School
Site Mgmt. Req.:	NONE SPECIFIED
Acres:	30.04
National Priorities List:	NO
Cleanup Oversight Agencies:	SMBRP
Lead Agency:	SMBRP
Lead Agency Description:	DTSC - Site Cleanup Program
Project Manager:	Not Reported
Supervisor:	Javier Hinojosa
Division Branch:	Southern California Schools & Brownfields Outreach
Site Code:	404388
Assembly:	67
Senate:	23
Special Program Status:	Not Reported
Status:	No Further Action
Status Date:	04/18/2003
Restricted Use:	NO
Funding:	School District
Latitude:	33.71149
Longitude:	-117.1956
APN:	NONE SPECIFIED
Past Use:	AGRICULTURAL - ROW CROPS
Potential COC:	Lead, Zinc
Confirmed COC:	30013-NO, 30594-NO
Potential Description:	SOIL, SV
Alias Name:	MCCALL MESA K-8 SCHOOL
Alias Type:	Alternate Name
Alias Name:	ROMOLAND ELEMENTARY SCHOOL DISTRICT

MCCALL MESA K-8 SCHOOL, MCCALL BOULEVARD/JUNIPERO ROAD, ROMOLAND, CA 92586 (Continued)

Alias Type:	Alternate Name
Alias Name:	ROMOLAND SD-MCCALL-MESA K-8
Alias Type:	Alternate Name
Alias Name:	404388
Alias Type:	Project Code (Site Code)
Alias Name:	33010066
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not Reported
Completed Document Type:	Cost Recovery Closeout Memo
Completed Date:	04/18/2003
Comments:	Not Reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not Reported
Completed Document Type:	Environmental Oversight Agreement
Completed Date:	10/28/2002
Comments:	Not Reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not Reported
Completed Document Type:	Preliminary Endangerment Assessment Report
Completed Date:	04/17/2003
Comments:	Not Reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not Reported
Completed Document Type:	Phase 1
Completed Date:	09/27/2002
Comments:	Not Reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not Reported
Completed Document Type:	Technical Report
Completed Date:	12/24/2002
Comments:	Not Reported
Future Area Name:	Not Reported
Future Sub Area Name:	Not Reported
Future Document Type:	Not Reported
Future Due Date:	Not Reported
Schedule Area Name:	Not Reported
Schedule Sub Area Name:	Not Reported
Schedule Document Type:	Not Reported
Schedule Due Date:	Not Reported
Schedule Revised Date:	Not Reported

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
ENVIRONMENTAL RECORDS						
Federal NPL site list						
US	NPL	National Priority List	EPA	04/27/2022	05/05/2022	05/31/2022
US	Proposed NPL	Proposed National Priority List Sites	EPA	04/27/2022	05/05/2022	05/31/2022
US	NPL LIENS	Federal Superfund Liens	EPA	10/15/1991	02/02/1994	03/30/1994
Federal CERCLIS list						
US	SEMS	Superfund Enterprise Management System	EPA	04/27/2022	05/05/2022	05/31/2022
Federal RCRA CORRACTS facilities list						
US	CORRACTS	Corrective Action Report	EPA	02/28/2022	03/02/2022	03/17/2022
Federal RCRA TSD facilities list						
US	RCRA-TSDF	RCRA - Treatment, Storage and Disposal	Environmental Protection Agency	02/28/2022	03/02/2022	03/17/2022
Federal RCRA generators list						
US	RCRA-LQG	RCRA - Large Quantity Generators	Environmental Protection Agency	02/28/2022	03/02/2022	03/17/2022
US	RCRA-SQG	RCRA - Small Quantity Generators	Environmental Protection Agency	02/28/2022	03/02/2022	03/17/2022
US	RCRA-VSQG	RCRA - Very Small Quantity Generators (Formerly Conditionall	Environmental Protection Agency	02/28/2022	03/02/2022	03/17/2022
Federal institutional controls / engineering controls registries						
US	LUCIS	Land Use Control Information System	Department of the Navy	02/08/2022	02/11/2022	05/10/2022
US	US ENG CONTROLS	Engineering Controls Sites List	Environmental Protection Agency	02/21/2022	02/23/2022	05/24/2022
US	US INST CONTROLS	Institutional Controls Sites List	Environmental Protection Agency	02/21/2022	02/23/2022	05/24/2022
Federal ERNS list						
US	ERNS	Emergency Response Notification System	National Response Center, United States Coast	12/31/2021	03/01/2022	03/10/2022
State and tribal - equivalent NPL						
CA	RESPONSE	State Response Sites	Department of Toxic Substances Control	01/24/2022	01/25/2022	04/13/2022
State and tribal - equivalent CERCLIS						
CA	ENVIROSTOR	EnviroStor Database	Department of Toxic Substances Control	01/24/2022	01/25/2022	04/13/2022
State and tribal landfill / solid waste disposal						
CA	SWF/LF (SWIS)	Solid Waste Information System	Department of Resources Recycling and Recover	02/07/2022	02/08/2022	05/05/2022
State and tribal leaking storage tank lists						
CA	LUST REG 6L	Leaking Underground Storage Tank Case Listing	California Regional Water Quality Control Boa	09/09/2003	09/10/2003	10/07/2003
CA	LUST REG 9	Leaking Underground Storage Tank Report	California Regional Water Quality Control Boa	03/01/2001	04/23/2001	05/21/2001
CA	LUST REG 8	Leaking Underground Storage Tanks	California Regional Water Quality Control Boa	02/14/2005	02/15/2005	03/28/2005
CA	LUST REG 7	Leaking Underground Storage Tank Case Listing	California Regional Water Quality Control Boa	02/26/2004	02/26/2004	03/24/2004
CA	LUST REG 5	Leaking Underground Storage Tank Database	California Regional Water Quality Control Boa	07/01/2008	07/22/2008	07/31/2008
CA	LUST REG 4	Underground Storage Tank Leak List	California Regional Water Quality Control Boa	09/07/2004	09/07/2004	10/12/2004
CA	LUST REG 3	Leaking Underground Storage Tank Database	California Regional Water Quality Control Boa	05/19/2003	05/19/2003	06/02/2003

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
CA	LUST REG 2	Fuel Leak List	California Regional Water Quality Control Boa	09/30/2004	10/20/2004	11/19/2004
CA	LUST REG 1	Active Toxic Site Investigation	California Regional Water Quality Control Boa	02/01/2001	02/28/2001	03/29/2001
CA	LUST REG 6V	Leaking Underground Storage Tank Case Listing	California Regional Water Quality Control Boa	06/07/2005	06/07/2005	06/29/2005
CA	LUST	Leaking Underground Fuel Tank Report (GEOTRACKER)	State Water Resources Control Board	05/23/2022	05/23/2022	05/24/2022
US	INDIAN LUST R10	Leaking Underground Storage Tanks on Indian Land	EPA Region 10	10/12/2021	11/15/2021	02/08/2022
US	INDIAN LUST R8	Leaking Underground Storage Tanks on Indian Land	EPA Region 8	10/12/2021	11/15/2021	02/08/2022
US	INDIAN LUST R6	Leaking Underground Storage Tanks on Indian Land	EPA Region 6	10/12/2021	11/15/2021	02/08/2022
US	INDIAN LUST R5	Leaking Underground Storage Tanks on Indian Land	EPA, Region 5	10/12/2021	11/15/2021	02/08/2022
US	INDIAN LUST R9	Leaking Underground Storage Tanks on Indian Land	Environmental Protection Agency	10/12/2021	11/15/2021	02/08/2022
US	INDIAN LUST R4	Leaking Underground Storage Tanks on Indian Land	EPA Region 4	05/28/2021	06/22/2021	09/20/2021
US	INDIAN LUST R7	Leaking Underground Storage Tanks on Indian Land	EPA Region 7	10/12/2021	11/15/2021	02/08/2022
US	INDIAN LUST R1	Leaking Underground Storage Tanks on Indian Land	EPA Region 1	04/28/2021	06/11/2021	09/07/2021
CA	CPS-SLIC	Statewide SLIC Cases (GEOTRACKER)	State Water Resources Control Board	05/23/2022	05/23/2022	05/24/2022
CA	SLIC REG 1	Active Toxic Site Investigations	California Regional Water Quality Control Boa	04/03/2003	04/07/2003	04/25/2003
CA	SLIC REG 2	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	Regional Water Quality Control Board San Fran	09/30/2004	10/20/2004	11/19/2004
CA	SLIC REG 3	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	California Regional Water Quality Control Boa	05/18/2006	05/18/2006	06/15/2006
CA	SLIC REG 4	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	Region Water Quality Control Board Los Angele	11/17/2004	11/18/2004	01/04/2005
CA	SLIC REG 5	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	Regional Water Quality Control Board Central	04/01/2005	04/05/2005	04/21/2005
CA	SLIC REG 6V	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	Regional Water Quality Control Board, Victorv	05/24/2005	05/25/2005	06/16/2005
CA	SLIC REG 6L	SLIC Sites	California Regional Water Quality Control Boa	09/07/2004	09/07/2004	10/12/2004
CA	SLIC REG 7	SLIC List	California Regional Quality Control Board, Co	11/24/2004	11/29/2004	01/04/2005
CA	SLIC REG 8	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	California Region Water Quality Control Board	04/03/2008	04/03/2008	04/14/2008
CA	SLIC REG 9	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	California Regional Water Quality Control Boa	09/10/2007	09/11/2007	09/28/2007
State and tribal registered storage tank lists						
CA	UST	Active UST Facilities	SWRCB	03/07/2022	03/08/2022	06/02/2022
CA	UST CLOSURE	Proposed Closure of Underground Storage Tank (UST) Cases	State Water Resources Control Board	03/07/2022	03/08/2022	06/03/2022
CA	MILITARY UST SITES	Military UST Sites (GEOTRACKER)	State Water Resources Control Board	05/23/2022	05/23/2022	06/02/2022
CA	AST	Aboveground Petroleum Storage Tank Facilities	California Environmental Protection Agency	07/06/2016	07/12/2016	09/19/2016
US	INDIAN UST R8	Underground Storage Tanks on Indian Land	EPA Region 8	10/12/2021	11/15/2021	02/08/2022
US	INDIAN UST R7	Underground Storage Tanks on Indian Land	EPA Region 7	10/12/2021	11/15/2021	02/08/2022
US	INDIAN UST R4	Underground Storage Tanks on Indian Land	EPA Region 4	05/28/2021	06/22/2021	09/20/2021
US	INDIAN UST R9	Underground Storage Tanks on Indian Land	EPA Region 9	10/12/2021	11/15/2021	02/08/2022
US	INDIAN UST R10	Underground Storage Tanks on Indian Land	EPA Region 10	10/12/2021	11/15/2021	02/08/2022
US	INDIAN UST R6	Underground Storage Tanks on Indian Land	EPA Region 6	10/12/2021	11/15/2021	02/08/2022
US	INDIAN UST R5	Underground Storage Tanks on Indian Land	EPA Region 5	04/06/2021	06/11/2021	09/07/2021
US	INDIAN UST R1	Underground Storage Tanks on Indian Land	EPA, Region 1	10/14/2021	11/15/2021	02/08/2022
US	FEMA UST	Underground Storage Tank Listing	FEMA	10/14/2021	11/05/2021	02/01/2022
State and tribal voluntary cleanup sites						
US	INDIAN VCP R7	Voluntary Cleanup Priority Lisitng	EPA, Region 7	03/20/2008	04/22/2008	05/19/2008
US	INDIAN VCP R1	Voluntary Cleanup Priority Listing	EPA, Region 1	07/27/2015	09/29/2015	02/18/2016
CA	VCP	Voluntary Cleanup Program Properties	Department of Toxic Substances Control	01/24/2022	01/25/2022	04/13/2022

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
State and tribal Brownfields sites						
CA	BROWNFIELDS	Considered Brownfieds Sites Listing	State Water Resources Control Board	12/15/2021	12/16/2021	03/03/2022
Other Records						
US	CONSENT	Superfund (CERCLA) Consent Decrees	Department of Justice, Consent Decree Library	12/31/2021	01/14/2022	03/25/2022
US	ROD	Records Of Decision	EPA	04/27/2022	05/05/2022	05/31/2022
US	LIENS 2	CERCLA Lien Information	Environmental Protection Agency	04/27/2022	05/05/2022	05/31/2022
CA	HIST CAL-SITES	Calsites Database	Department of Toxic Substance Control	08/08/2005	08/03/2006	08/24/2006
US	DEBRIS REGION 9	Torres Martinez Reservation Illegal Dump Site Locations	EPA, Region 9	01/12/2009	05/07/2009	09/21/2009
CA	SWRCY	Recycler Database	Department of Conservation	03/07/2022	03/08/2022	06/02/2022
CA	CA FID UST	Facility Inventory Database	California Environmental Protection Agency	10/31/1994	09/05/1995	09/29/1995
CA	HIST UST	Hazardous Substance Storage Container Database	State Water Resources Control Board	10/15/1990	01/25/1991	02/12/1991
CA	SAN FRANCISCO AST	Aboveground Storage Tank Site Listing	San Francisco County Department of Public Hea	02/03/2022	02/04/2022	05/02/2022
CA	SWEEPS UST	SWEEPS UST Listing	State Water Resources Control Board	06/01/1994	07/07/2005	08/11/2005
US	US FIN ASSUR	Financial Assurance Information	Environmental Protection Agency	12/13/2021	12/17/2021	03/17/2022
US	COAL ASH DOE	Steam-Electric Plant Operation Data	Department of Energy	12/31/2020	11/30/2021	02/22/2022
US	2020 COR ACTION	2020 Corrective Action Program List	Environmental Protection Agency	09/30/2017	05/08/2018	07/20/2018
US	FUSRAP	Formerly Utilized Sites Remedial Action Program	Department of Energy	07/26/2021	07/27/2021	10/22/2021
US	LEAD SMELTER 1	Lead Smelter Sites	Environmental Protection Agency	04/27/2022	05/05/2022	05/31/2022
US	COAL ASH EPA	Coal Combustion Residues Surface Impoundments List	Environmental Protection Agency	01/12/2017	03/05/2019	11/11/2019
US	LEAD SMELTER 2	Lead Smelter Sites	American Journal of Public Health	04/05/2001	10/27/2010	12/02/2010
US	EPA WATCH LIST	EPA WATCH LIST	Environmental Protection Agency	08/30/2013	03/21/2014	06/17/2014
US	US AIRS (AFS)	Aerometric Information Retrieval System Facility Subsystem (	EPA	10/12/2016	10/26/2016	02/03/2017
US	US AIRS MINOR	Air Facility System Data	EPA	10/12/2016	10/26/2016	02/03/2017
US	PCB TRANSFORMER	PCB Transformer Registration Database	Environmental Protection Agency	09/13/2019	11/06/2019	02/10/2020
US	SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing	Environmental Protection Agency	01/01/2017	02/03/2017	04/07/2017
US	US HIST CDL	National Clandestine Laboratory Register	Drug Enforcement Administration	02/22/2022	02/23/2022	05/10/2022
US	Delisted NPL	National Priority List Deletions	EPA	04/27/2022	05/05/2022	05/31/2022
US	SEMS-ARCHIVE	Superfund Enterprise Management System Archive	EPA	04/27/2022	05/05/2022	05/31/2022
US	RCRA NonGen / NLR	RCRA - Non Generators / No Longer Regulated	Environmental Protection Agency	02/28/2022	03/02/2022	03/17/2022
US	HMIRS	Hazardous Materials Information Reporting System	U.S. Department of Transportation	12/15/2021	12/16/2021	03/10/2022
US	DOT OPS	Incident and Accident Data	Department of Transporation, Office of Pipeli	01/02/2020	01/28/2020	04/17/2020
US	US CDL	Clandestine Drug Labs	Drug Enforcement Administration	02/22/2022	02/23/2022	05/10/2022
US	US BROWNFIELDS	A Listing of Brownfields Sites	Environmental Protection Agency	02/23/2022	03/10/2022	03/10/2022
US	DOD	Department of Defense Sites	USGS	06/07/2021	07/13/2021	03/09/2022
US	FEDLAND	Federal and Indian Lands	U.S. Geological Survey	04/02/2018	04/11/2018	11/06/2019
US	FUDS	Formerly Used Defense Sites	U.S. Army Corps of Engineers	12/01/2021	02/15/2022	05/10/2022
US	UMTRA	Uranium Mill Tailings Sites	Department of Energy	08/30/2019	11/15/2019	01/28/2020
US	ODI	Open Dump Inventory	Environmental Protection Agency	06/30/1985	08/09/2004	09/17/2004
US	US MINES	Mines Master Index File	Department of Labor, Mine Safety and Health A	02/01/2022	02/23/2022	05/24/2022
US	MINES VIOLATIONS	MSHA Violation Assessment Data	DOL, Mine Safety & Health Admi	03/21/2022	03/22/2022	03/25/2022
US	US MINES 2	Ferrous and Nonferrous Metal Mines Database Listing	USGS	05/06/2020	05/27/2020	08/13/2020
US	US MINES 3	Active Mines & Mineral Plants Database Listing	USGS	04/14/2011	06/08/2011	09/13/2011
US	PRP	Potentially Responsible Parties	EPA	01/25/2022	02/03/2022	02/25/2022
US	TRIS	Toxic Chemical Release Inventory System	EPA	12/31/2018	08/14/2020	11/04/2020
US	TSCA	Toxic Substances Control Act	EPA	12/31/2016	06/17/2020	09/10/2020

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
US	FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fu	EPA/Office of Prevention, Pesticides and Toxi	04/09/2009	04/16/2009	05/11/2009
US	FTTS INSP	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fu	EPA	04/09/2009	04/16/2009	05/11/2009
US	HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing	Environmental Protection Agency	10/19/2006	03/01/2007	04/10/2007
US	HIST FTTS INSP	FIFRA/TSCA Tracking System Inspection & Enforcement Case Lis	Environmental Protection Agency	10/19/2006	03/01/2007	04/10/2007
US	SSTS	Section 7 Tracking Systems	EPA	01/19/2022	01/19/2022	04/11/2022
US	ICIS	Integrated Compliance Information System	Environmental Protection Agency	11/18/2016	11/23/2016	02/10/2017
US	PADS	PCB Activity Database System	EPA	01/20/2022	01/20/2022	03/25/2022
US	MLTS	Material Licensing Tracking System	Nuclear Regulatory Commission	07/29/2021	08/24/2021	11/19/2021
US	RADINFO	Radiation Information Database	Environmental Protection Agency	07/01/2019	07/01/2019	09/23/2019
US	FINDS	Facility Index System/Facility Registry System	EPA	05/13/2022	05/18/2022	05/31/2022
US	RAATS	RCRA Administrative Action Tracking System	EPA	04/17/1995	07/03/1995	08/07/1995
US	RMP	Risk Management Plans	Environmental Protection Agency	04/27/2022	05/04/2022	05/10/2022
US	BRS	Biennial Reporting System	EPA/NTIS	12/31/2019	03/02/2022	03/25/2022
US	PWS	Public Water System Data	EPA	12/17/2013	01/09/2014	10/15/2014
US	INDIAN RESERV	Indian Reservations	USGS	12/31/2014	07/14/2015	01/10/2017
US	INDIAN ODI	Report on the Status of Open Dumps on Indian Lands	Environmental Protection Agency	12/31/1998	12/03/2007	01/24/2008
US	IHS OPEN DUMPS	Open Dumps on Indian Land	Department of Health & Human Serivces, Indian	04/01/2014	08/06/2014	01/29/2015
US	ABANDONED MINES	Abandoned Mines	Department of Interior	12/14/2021	12/15/2021	03/10/2022
CA	CA BOND EXP. PLAN	Bond Expenditure Plan	Department of Health Services	01/01/1989	07/27/1994	08/02/1994
CA	CDL	Clandestine Drug Labs	Department of Toxic Substances Control	12/31/2019	01/20/2021	04/08/2021
CA	CHMIRS	California Hazardous Material Incident Report System	Office of Emergency Services	12/31/2021	01/19/2022	04/08/2022
CA	CORTESE	"Cortese" Hazardous Waste & Substances Sites List	CAL EPA/Office of Emergency Information	12/16/2021	12/16/2021	03/03/2022
CA	CUPA LIVERMORE-PLEASANTON	CUPA Facility Listing	Livermore-Pleasanton Fire Department	12/07/2021	05/09/2022	05/17/2022
CA	DEED	Deed Restriction Listing	DTSC and SWRCB	02/28/2022	02/28/2022	05/25/2022
CA	DRYCLEANERS	Cleaner Facilities	Department of Toxic Substance Control	08/27/2021	09/01/2021	11/19/2021
CA	DRYCLEAN AVAQMD	Antelope Valley Air Quality Management District Drycleaner L	Antelope Valley Air Quality Management Distri	02/24/2022	02/25/2022	05/18/2022
CA	DRYCLEAN SOUTH COAST	South Coast Air Quality Management District Drycleaner Listi	South Coast Air Quality Management District	02/17/2022	02/24/2022	05/18/2022
CA	EMI	Emissions Inventory Data	California Air Resources Board	12/31/2019	06/10/2021	08/27/2021
CA	ENF	Enforcement Action Listing	State Water Resoruces Control Board	04/12/2022	04/19/2022	05/31/2022
CA	Financial Assurance 1	Financial Assurance Information Listing	Department of Toxic Substances Control	01/13/2022	01/14/2022	04/08/2022
CA	Financial Assurance 2	Financial Assurance Information Listing	California Integrated Waste Management Board	02/23/2022	02/24/2022	05/18/2022
CA	HAULERS	Registered Waste Tire Haulers Listing	Integrated Waste Management Board	02/15/2022	02/24/2022	05/25/2022
CA	HAZNET	Facility and Manifest Data	California Environmental Protection Agency	12/31/2019	04/15/2020	07/02/2020
CA	HIST CORTESE	Hazardous Waste & Substance Site List	Department of Toxic Substances Control	04/01/2001	01/22/2009	04/08/2009
CA	HWP	EnviroStor Permitted Facilities Listing	Department of Toxic Substances Control	02/14/2022	02/15/2022	05/12/2022
CA	HWT	Registered Hazardous Waste Transporter Database	Department of Toxic Substances Control	01/03/2022	01/04/2022	03/18/2022
CA	ICE	ICE	Department of Toxic Subsances Control	02/14/2022	02/15/2022	05/12/2022
CA	LDS	Land Disposal Sites Listing (GEOTRACKER)	State Water Qualilty Control Board	05/23/2022	05/23/2022	05/24/2022
CA	LIENS	Environmental Liens Listing	Department of Toxic Substances Control	02/24/2022	02/25/2022	03/09/2022
CA	MCS	Military Cleanup Sites Listing (GEOTRACKER)	State Water Resources Control Board	05/23/2022	05/23/2022	05/24/2022
CA	MINES	Mines Site Location Listing	Department of Conservation	03/07/2022	03/08/2022	06/01/2022
CA	MWMP	Medical Waste Management Program Listing	Department of Public Health	02/17/2022	02/28/2022	05/25/2022
CA	NPDES	NPDES Permits Listing	State Water Resources Control Board	02/07/2022	02/08/2022	05/05/2022
CA	PEST LIC	Pesticide Regulation Licenses Listing	Department of Pesticide Regulation	02/28/2022	02/28/2022	05/25/2022
CA	PROC	Certified Processors Database	Department of Conservation	03/07/2022	03/08/2022	06/02/2022
CA	NOTIFY 65	Proposition 65 Records	State Water Resources Control Board	03/11/2022	03/15/2022	06/08/2022
CA	SCH	School Property Evaluation Program	Department of Toxic Substances Control	01/24/2022	01/25/2022	04/13/2022

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
CA	SPILLS 90	SPILLS90 data from FirstSearch	FirstSearch	06/06/2012	01/03/2013	02/22/2013
CA	TOXIC PITS	Toxic Pits Cleanup Act Sites	State Water Resources Control Board	07/01/1995	08/30/1995	09/26/1995
CA	UIC	UIC Listing	Deaprtment of Conservation	03/07/2022	03/08/2022	06/02/2022
CA	WASTEWATER PITS	Oil Wastewater Pits Listing	RWQCB, Central Valley Region	02/11/2021	07/01/2021	09/29/2021
CA	WDS	Waste Discharge System	State Water Resources Control Board	06/19/2007	06/20/2007	06/29/2007
CA	WIP	Well Investigation Program Case List	Los Angeles Water Quality Control Board	07/03/2009	07/21/2009	08/03/2009
CA	WMUDS/SWAT	Waste Management Unit Database	State Water Resources Control Board	04/01/2000	04/10/2000	05/10/2000
CA	HWTS	Hazardous Waste Tracking System	Department of Toxic Substances Control	04/05/2022	04/05/2022	04/26/2022
CA	WDR	Waste Discharge Requirements Listing	State Water Resources Control Board	03/07/2022	03/08/2022	06/03/2022
US	UXO	Unexploded Ordnance Sites	Department of Defense	12/31/2020	01/11/2022	02/14/2022
CA	CERS TANKS	California Environmental Reporting System (CERS) Tanks	California Environmental Protection Agency	01/18/2022	01/19/2022	04/11/2022
CA	CERS HAZ WASTE	CERS HAZ WASTE	CalEPA	01/18/2022	01/19/2022	04/11/2022
US	ECHO	Enforcement & Compliance History Information	Environmental Protection Agency	01/01/2022	01/04/2022	01/10/2022
CA	NON-CASE INFO	Non-Case Information Sites (GEOTRACKER)	State Water Resources Control Board	05/23/2022	05/23/2022	06/02/2022
US	MINES MRDS	Mineral Resources Data System	USGS	04/06/2018	10/21/2019	10/24/2019
CA	MILITARY PRIV SITES	Military Privatized Sites (GEOTRACKER)	State Water Resources Control Board	05/23/2022	05/23/2022	06/02/2022
CA	WELL STIM PROJ	Well Stimulation Project (GEOTRACKER)	State Water Resources Control Board	05/23/2022	05/23/2022	06/02/2022
CA	UIC GEO	Underground Injection Control Sites (GEOTRACKER)	State Water Resource Control Board	05/23/2022	05/23/2022	06/02/2022
CA	SAMPLING POINT	Sampling Point ? Public Sites (GEOTRACKER)	State Water Resources Control Board	05/23/2022	05/23/2022	06/02/2022
CA	PROJECT	Project Sites (GEOTRACKER)	State Water Resources Control Board	05/23/2022	05/23/2022	06/02/2022
CA	PROD WATER PONDS	Produced Water Ponds Sites (GEOTRACKER)	State Water Resources Control Board	05/23/2022	05/23/2022	06/02/2022
US	FEDERAL FACILITY	Federal Facility Site Information listing	Environmental Protection Agency	05/25/2021	06/24/2021	09/20/2021
CA	OTHER OIL GAS	Other Oil & Gas Projects Sites (GEOTRACKER)	State Water Resources Control Board	05/23/2022	05/23/2022	06/02/2022
CA	PFAS	PFAS Contamination Site Location Listing	State Water Resources Control Board	03/07/2022	03/08/2022	06/02/2022
US	FUELS PROGRAM	EPA Fuels Program Registered Listing	EPA	02/17/2022	02/17/2022	05/10/2022
CA	AQUEOUS FOAM	Former Fire Training Facility Assessments Listing	State Water Resources Control Board	02/20/2020	12/10/2021	02/25/2022
US	DOCKET HWC	Hazardous Waste Compliance Docket Listing	Environmental Protection Agency	05/06/2021	05/21/2021	08/11/2021
CA	CERS	CalEPA Regulated Site Portal Data	California Environmental Protection Agency	01/18/2022	01/19/2022	04/08/2022
CA	CIWQS	California Integrated Water Quality System	State Water Resources Control Board	02/28/2022	02/28/2022	05/25/2022
HISTORICAL USE RECORDS						
US	EDR MGP	EDR Proprietary Manufactured Gas Plants	EDR, Inc.			
US	EDR Hist Auto	EDR Exclusive Historical Auto Stations	EDR, Inc.			
US	EDR Hist Cleaner	EDR Exclusive Historical Cleaners	EDR, Inc.			
CA	RGA LF	Recovered Government Archive Solid Waste Facilities List	Department of Resources Recycling and Recover		07/01/2013	01/13/2014
CA	RGA LUST	Recovered Government Archive Leaking Underground Storage Tan	State Water Resources Control Board		07/01/2013	12/30/2013

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
COUNTY RECORDS						
CA	CS ALAMEDA	Contaminated Sites	Alameda County Environmental Health Services	01/09/2019	01/11/2019	03/05/2019
CA	UST ALAMEDA	Underground Tanks	Alameda County Environmental Health Services	12/28/2021	12/28/2021	03/18/2022
CA	CUPA AMADOR	CUPA Facility List	Amador County Environmental Health	02/04/2022	02/04/2022	05/02/2022
CA	CUPA BUTTE	CUPA Facility Listing	Public Health Department	04/21/2017	04/25/2017	08/09/2017
CA	CUPA CALVERAS	CUPA Facility Listing	Calveras County Environmental Health	03/17/2022	03/18/2022	06/08/2022
CA	CUPA COLUSA	CUPA Facility List	Health & Human Services	04/06/2020	04/23/2020	07/10/2020
CA	SL CONTRA COSTA	Site List	Contra Costa Health Services Department	01/24/2022	01/25/2022	04/14/2022
CA	CUPA DEL NORTE	CUPA Facility List	Del Norte County Environmental Health Divisio	01/10/2022	01/26/2022	04/14/2022
CA	CUPA EL DORADO	CUPA Facility List	El Dorado County Environmental Management Dep	02/16/2022	02/17/2022	05/10/2022
CA	CUPA FRESNO	CUPA Resources List	Dept. of Community Health	06/28/2021	12/21/2021	03/03/2022
CA	CUPA GLENN	CUPA Facility List	Glenn County Air Pollution Control District	01/22/2018	01/24/2018	03/14/2018
CA	CUPA HUMBOLDT	CUPA Facility List	Humboldt County Environmental Health	08/12/2021	08/12/2021	11/08/2021
CA	CUPA IMPERIAL	CUPA Facility List	San Diego Border Field Office	01/13/2022	01/14/2022	04/06/2022
CA	CUPA INYO	CUPA Facility List	Inyo County Environmental Health Services	04/02/2018	04/03/2018	06/14/2018
CA	CUPA KERN	CUPA Facility List	Kern County Public Health	02/10/2022	02/11/2022	05/04/2022
CA	UST KERN	Underground Storage Tank Sites & Tank Listing	Kern County Environment Health Services Depar	02/10/2022	02/11/2022	05/04/2022
CA	CUPA KINGS	CUPA Facility List	Kings County Department of Public Health	12/03/2020	01/26/2021	04/14/2021
CA	CUPA LAKE	CUPA Facility List	Lake County Environmental Health	02/10/2022	02/11/2022	05/04/2022
CA	CUPA LASSEN	CUPA Facility List	Lassen County Environmental Health	07/31/2020	08/21/2020	11/09/2020
CA	AOCONCERN	Key Areas of Concerns in Los Angeles County		03/30/2009	03/31/2009	10/23/2009
CA	HMS LOS ANGELES	HMS: Street Number List	Department of Public Works	04/04/2022	04/05/2022	04/13/2022
CA	LF LOS ANGELES	List of Solid Waste Facilities	La County Department of Public Works	01/10/2022	01/11/2022	04/04/2022
CA	LF LOS ANGELES CITY	City of Los Angeles Landfills	Engineering & Construction Division	01/01/2022	01/21/2022	04/11/2022
CA	LOS ANGELES AST	Active & Inactive AST Inventory	Los Angeles Fire Department	06/01/2019	06/25/2019	08/22/2019
CA	LOS ANGELES CO LF METHANE	Methane Producing Landfills	Los Angeles County Department of Public Works	01/10/2022	01/12/2022	04/04/2022
CA	LOS ANGELES HM	Active & Inactive Hazardous Materials Inventory	Los Angeles Fire Department	04/19/2021	06/17/2021	06/28/2021
CA	LOS ANGELES UST	Active & Inactive UST Inventory	Los Angeles Fire Department	04/19/2021	06/17/2021	09/14/2021
CA	SITE MIT LOS ANGELES	Site Mitigation List	Community Health Services	05/26/2021	07/09/2021	09/29/2021
CA	UST EL SEGUNDO	City of El Segundo Underground Storage Tank	City of El Segundo Fire Department	01/21/2017	04/19/2017	05/10/2017
CA	UST LONG BEACH	City of Long Beach Underground Storage Tank	City of Long Beach Fire Department	04/22/2019	04/23/2019	06/27/2019
CA	UST TORRANCE	City of Torrance Underground Storage Tank	City of Torrance Fire Department	02/02/2021	04/28/2021	07/13/2021
CA	CUPA MADERA	CUPA Facility List	Madera County Environmental Health	08/10/2020	08/12/2020	10/23/2020
CA	UST MARIN	Underground Storage Tank Sites	Public Works Department Waste Management	09/26/2018	10/04/2018	11/02/2018
CA	UST MENDOCINO	Mendocino County UST Database	Department of Public Health	09/22/2021	11/18/2021	11/22/2021
CA	CUPA MERCED	CUPA Facility List	Merced County Environmental Health	02/15/2022	02/17/2022	05/11/2022
CA	CUPA MONO	CUPA Facility List	Mono County Health Department	02/22/2021	03/02/2021	05/19/2021
CA	CUPA MONTEREY	CUPA Facility Listing	Monterey County Health Department	10/04/2021	10/06/2021	12/29/2021
CA	LUST NAPA	Sites With Reported Contamination	Napa County Department of Environmental Manag	01/09/2017	01/11/2017	03/02/2017
CA	UST NAPA	Closed and Operating Underground Storage Tank Sites	Napa County Department of Environmental Manag	09/05/2019	09/09/2019	10/31/2019
CA	CUPA NEVADA	CUPA Facility List	Community Development Agency	01/25/2022	01/26/2022	04/14/2022
CA	IND_SITE ORANGE	List of Industrial Site Cleanups	Health Care Agency	01/14/2022	02/03/2022	04/14/2022
CA	LUST ORANGE	List of Underground Storage Tank Cleanups	Health Care Agency	01/14/2022	02/04/2022	05/02/2022
CA	UST ORANGE	List of Underground Storage Tank Facilities	Health Care Agency	01/14/2022	02/01/2022	04/18/2022
CA	MS PLACER	Master List of Facilities	Placer County Health and Human Services	05/25/2022	05/26/2022	06/01/2022
CA	CUPA PLUMAS	CUPA Facility List	Plumas County Environmental Health	03/31/2019	04/23/2019	06/26/2019

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
CA	LUST RIVERSIDE	Listing of Underground Tank Cleanup Sites	Department of Environmental Health	03/31/2022	03/31/2022	04/08/2022
CA	UST RIVERSIDE	Underground Storage Tank Tank List	Department of Environmental Health	03/31/2022	03/31/2022	04/08/2022
CA	CS SACRAMENTO	Toxic Site Clean-Up List	Sacramento County Environmental Management	06/18/2021	09/28/2021	12/14/2021
CA	ML SACRAMENTO	Master Hazardous Materials Facility List	Sacramento County Environmental Management	08/02/2021	08/04/2021	11/02/2021
CA	CUPA SAN BENITO	CUPA Facility List	San Benito County Environmental Health	04/29/2022	04/29/2022	05/05/2022
CA	PERMITS SAN BERNARDINO	Hazardous Material Permits	San Bernardino County Fire Department Hazardo	05/12/2022	05/12/2022	05/18/2022
CA	HMMD SAN DIEGO	Hazardous Materials Management Division Database	Hazardous Materials Management Division	02/28/2022	02/28/2022	05/25/2022
CA	LF SAN DIEGO	Solid Waste Facilities	Department of Health Services	10/27/2021	03/04/2022	05/31/2022
CA	SAN DIEGO CO LOP	Local Oversight Program Listing	Department of Environmental Health	07/22/2021	10/19/2021	01/13/2022
CA	SAN DIEGO CO SAM	Environmental Case Listing	San Diego County Department of Environmental	03/23/2010	06/15/2010	07/09/2010
CA	CUPA SAN FRANCISCO CO	CUPA Facility Listing	San Francisco County Department of Environmen	02/03/2022	02/04/2022	02/11/2022
CA	LUST SAN FRANCISCO	Local Oversite Facilities	Department Of Public Health San Francisco Cou	09/19/2008	09/19/2008	09/29/2008
CA	UST SAN FRANCISCO	Underground Storage Tank Information	Department of Public Health	02/03/2022	02/04/2022	05/02/2022
CA	SAN FRANCISCO MAHER	Maher Ordinance Property Listing	San Francisco Planning	01/18/2022	01/20/2022	04/27/2022
CA	UST SAN JOAQUIN	San Joaquin Co. UST	Environmental Health Department	06/22/2018	06/26/2018	07/11/2018
CA	CUPA SAN LUIS OBISPO	CUPA Facility List	San Luis Obispo County Public Health Departme	02/15/2022	02/16/2022	05/13/2022
CA	BI SAN MATEO	Business Inventory	San Mateo County Environmental Health Service	02/20/2020	02/20/2020	04/24/2020
CA	LUST SAN MATEO	Fuel Leak List	San Mateo County Environmental Health Service	03/29/2019	03/29/2019	05/29/2019
CA	CUPA SANTA BARBARA	CUPA Facility Listing	Santa Barbara County Public Health Department	09/08/2011	09/09/2011	10/07/2011
CA	CUPA SANTA CLARA	Cupa Facility List	Department of Environmental Health	02/14/2022	02/16/2022	05/12/2022
CA	HIST LUST SANTA CLARA	HIST LUST - Fuel Leak Site Activity Report	Santa Clara Valley Water District	03/29/2005	03/30/2005	04/21/2005
CA	LUST SANTA CLARA	LOP Listing	Department of Environmental Health	03/03/2014	03/05/2014	03/18/2014
CA	SAN JOSE HAZMAT	Hazardous Material Facilities	City of San Jose Fire Department	11/03/2020	11/05/2020	01/26/2021
CA	CUPA SANTA CRUZ	CUPA Facility List	Santa Cruz County Environmental Health	01/21/2017	02/22/2017	05/23/2017
CA	CUPA SHASTA	CUPA Facility List	Shasta County Department of Resource Manageme	06/15/2017	06/19/2017	08/09/2017
CA	LUST SOLANO	Leaking Underground Storage Tanks	Solano County Department of Environmental Man	06/04/2019	06/06/2019	08/13/2019
CA	UST SOLANO	Underground Storage Tanks	Solano County Department of Environmental Man	09/15/2021	09/16/2021	12/09/2021
CA	CUPA SONOMA	Cupa Facility List	County of Sonoma Fire & Emergency Services De	07/02/2021	07/06/2021	07/14/2021
CA	LUST SONOMA	Leaking Underground Storage Tank Sites	Department of Health Services	06/30/2021	06/30/2021	09/24/2021
CA	CUPA STANISLAUS	CUPA Facility List	Stanislaus County Department of Ennvironmenta	02/08/2022	02/10/2022	05/04/2022
CA	UST SUTTER	Underground Storage Tanks	Sutter County Environmental Health Services	11/23/2021	11/29/2021	02/11/2022
CA	CUPA TEHAMA	CUPA Facility List	Tehama County Department of Environmental Hea	01/13/2021	01/14/2021	04/06/2021
CA	CUPA TRINITY	CUPA Facility List	Department of Toxic Substances Control	01/13/2022	01/14/2022	04/06/2022
CA	CUPA TULARE	CUPA Facility List	Tulare County Environmental Health Services D	04/26/2021	04/28/2021	07/13/2021
CA	CUPA TUOLUMNE	CUPA Facility List	Divison of Environmental Health	04/23/2018	04/25/2018	06/25/2018
CA	BWT VENTURA	Business Plan, Hazardous Waste Producers, and Operating Unde	Ventura County Environmental Health Division	12/27/2021	01/20/2022	04/08/2022
CA	LF VENTURA	Inventory of Illegal Abandoned and Inactive Sites	Environmental Health Division	12/01/2011	12/01/2011	01/19/2012
CA	LUST VENTURA	Listing of Underground Tank Cleanup Sites	Environmental Health Division	05/29/2008	06/24/2008	07/31/2008
CA	MED WASTE VENTURA	Medical Waste Program List	Ventura County Resource Management Agency	12/27/2021	01/20/2022	04/11/2022
CA	UST VENTURA	Underground Tank Closed Sites List	Environmental Health Division	02/28/2022	03/08/2022	06/02/2022
CA	UST YOLO	Underground Storage Tank Comprehensive Facility Report	Yolo County Department of Health	12/27/2021	01/04/2022	03/18/2022
CA	CUPA YUBA	CUPA Facility List	Yuba County Environmental Health Department	01/26/2022	01/27/2022	04/14/2022

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date

STREET AND ADDRESS INFORMATION

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APPENDIX F
RESUME OF ESA REPORT PREPARER

EDUCATION

- M.B.A., Business, California Baptist University, Riverside, 2007
- B.S. Health Science; Environmental Health Concentration, California State University, San Bernardino, 2002

EXPERIENCE SUMMARY

Mr. Amendola has experience in land use planning, CEQA compliance, surface mine planning and permitting, and regulatory compliance since 2002. He has managed the environmental compliance documentation for both public and private development projects throughout southern California. Mr. Amendola has completed Phase I Environmental Site Assessments in compliance with ASTM and Federal Standards since 2002. In addition to completing ESAs for local municipalities throughout the Inland Empire, he is also experienced in the preparation of documents in compliance with the Certified Unified Program Agency (CUPA), Business Emergency/Contingency Plan, California Environmental Quality Act (CEQA), National Environmental Policy Act (NEPA), Surface Mining and Reclamation Act (SMRA), and California Clean Air Act.

SELECTED PHASE I ESA PROJECT EXPERIENCE

- Phase I ESA for Apple Valley Ranchos Water Company Well Site, Town of Apple Valley
- Phase I ESA San Bernardino County Public Works on a 0.9-acre vacant parcel within City of Victorville.
- Phase I ESA San Bernardino County Flood Control District on 1.48 acres located west of Hesperia Road and north of Seneca Road in the City of Victorville,
- Phase I ESA for Northern Portion of a 3.5-acre property at 5156 Route 66, City of Needles
- Phase I ESA for Southern Portion of a 3.5-acre property at 5156 Route 66, City of Needles
- Phase I ESA for Property West of Graham Street Between West Merz Road and Weston Road, City of Perris
- Phase I ESA for County of Riverside Future Animal Shelter on Six Parcels Totaling 20.5 acres, City of San Jacinto
- Phase I ESA for 10.5-acre Property South of Congress Street and North of Santa Ana River, City of Colton
- Phase I ESA for 0.5-acre Property at 1595 W. Valley Boulevard, City of Colton
- Phase I ESA Future San Bernardino County Fire Station on 2.91-acre Site near San Bernardino Avenue and Commerce Drive, City of San Bernardino

- Phase I ESA for 2.8-acre Property at 14205 Valley Boulevard, City of Fontana
- Phase I ESA for Nine Parcels Totaling Approximately 20 Acres south of San Bernardino Avenue in Vicinity of North Woodpine and North Indigo Avenues, City of Colton
- Phase I ESA for Five Parcels Totaling Approximately 4.2 Acres At Southwest Corner of Foothill Boulevard and Almeria Avenue, Unincorporated Area of Fontana
- Phase I ESA for 0.6-acre Property near Arrow Boulevard and Whittram Avenue, Fontana
- Phase I ESA for 9.74-acre Property Near Terminus of Love Lane, Unincorporated Area of Corona

PROFESSIONAL AFFILIATIONS & CERTIFICATIONS

Certificate of Completion, 2019, SMARA Inspection
Workshop Association of Environmental Professionals (AEP),
member

Appendix 5: LID Infeasibility

LID Technical Infeasibility Analysis

Appendix 6: BMP Design Details

BMP Sizing, Design Details and other Supporting Documentation

Santa Ana Watershed - BMP Design Volume, V_{BMP}

(Rev. 10-2011)

Legend: Required Entries / Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name: Christiansen & Company — Date: 1/21/2022

Designed by: Keith Christiansen — Case No:

Company Project Number/Name: The Village at Junipero

BMP Identification

BMP NAME / ID: DMA-1 - Contech Chambers

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

85th Percentile, 24-hour Rainfall Depth, from the Isohyetal Map in Handbook Appendix E

D_{85}= 0.61 inches

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
1	*312761*	*Mixed Surface Types*	*0.85*	*0.66*	*206819.2*			

Santa Ana Watershed - BMP Design Volume, V_{BMP}

(Rev. 10-2011)

Legend: Required Entries / Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name	Christiansen & Company	Date	1/21/2022
Designed by	Keith Christiansen	Case No	
Company Project Number/Name	The Village at Junipero		

BMP Identification

BMP NAME / ID: DMA-2 - Contech Chambers

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

85th Percentile, 24-hour Rainfall Depth, from the Isohyetal Map in Handbook Appendix E

D_{85}= 0.61 inches

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	Design Storm Depth (in)	Design Capture Volume, V_{BMP} (cubic feet)	Proposed Volume on Plans (cubic feet)
2	433422	Mixed Surface Types	0.85	0.66	286608.6			
	433422	Total			286608.6	0.61	14569.3	15000

Notes:

Appendix 7: Hydromodification

Supporting Detail Relating to Hydrologic Conditions of Concern

NOAA ATLAS 14 POINT PRECIPITATION FREQUENCY ESTIMATES: CA

DATA DESCRIPTION

Data type: precipitation depth Units: english Time series type: partial duration

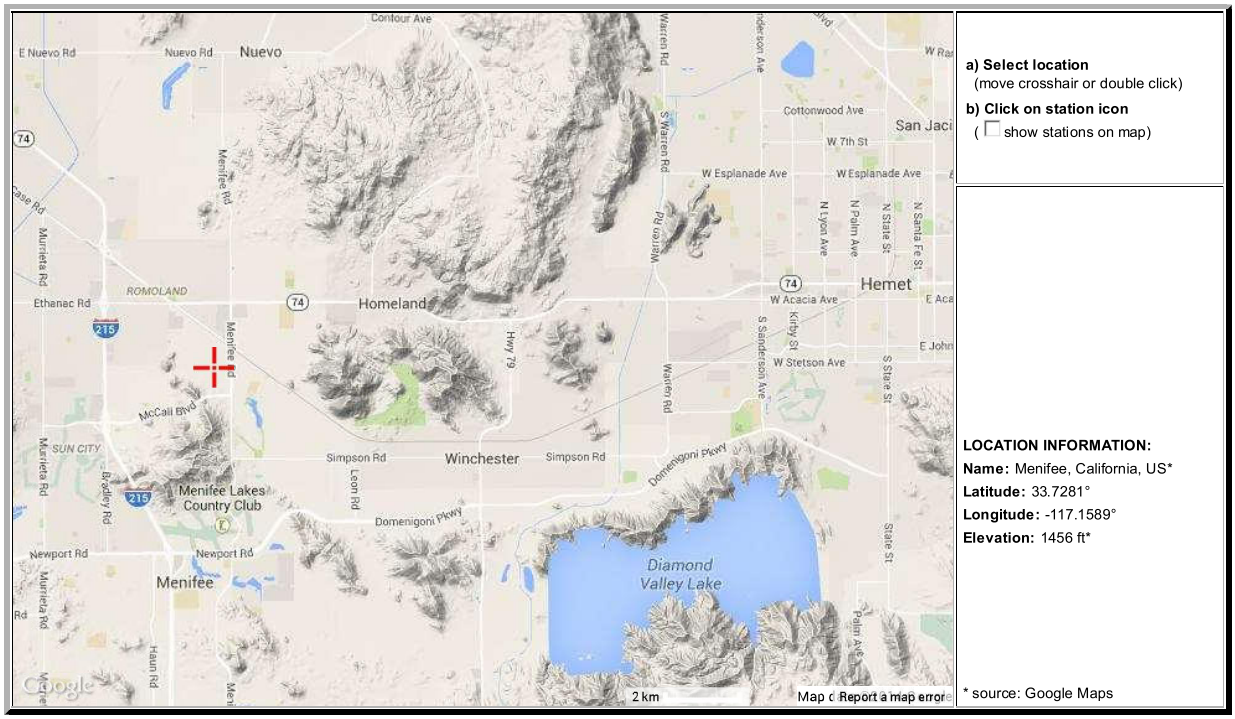
SELECT LOCATION

1. Manually:

a) Enter location (decimal degrees, use "-" for S and W): latitude: longitude: submit

b) Select station (click here for a list of stations used in frequency analysis for CA): select station

2. Use map:



a) Select location
(move crosshair or double click)
b) Click on station icon
(show stations on map)

LOCATION INFORMATION:
Name: Menifee, California, US*
Latitude: 33.7281°
Longitude: -117.1589°
Elevation: 1456 ft*

* source: Google Maps

POINT PRECIPITATION FREQUENCY (PF) ESTIMATES

WITH 90% CONFIDENCE INTERVALS AND SUPPLEMENTARY INFORMATION
NOAA Atlas 14, Volume 6, Version 2

PF tabular PF graphical Supplementary information Print Page

PDS-based precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.084 (0.071-0.102)	0.122 (0.102-0.147)	0.173 (0.144-0.210)	0.217 (0.179-0.265)	0.279 (0.222-0.353)	0.329 (0.257-0.425)	0.382 (0.290-0.507)	0.438 (0.324-0.599)	0.519 (0.367-0.741)	0.585 (0.399-0.866)
10-min	0.121 (0.101-0.146)	0.175 (0.146-0.211)	0.248 (0.207-0.301)	0.311 (0.257-0.380)	0.399 (0.319-0.506)	0.471 (0.368-0.610)	0.547 (0.416-0.726)	0.628 (0.464-0.859)	0.744 (0.526-1.06)	0.838 (0.572-1.24)
15-min	0.146 (0.123-0.177)	0.211 (0.177-0.255)	0.300 (0.250-0.363)	0.376 (0.310-0.459)	0.483 (0.385-0.611)	0.570 (0.445-0.737)	0.661 (0.503-0.878)	0.760 (0.561-1.04)	0.900 (0.636-1.28)	1.01 (0.692-1.50)
30-min	0.239 (0.200-0.288)	0.345 (0.288-0.417)	0.490 (0.409-0.594)	0.614 (0.507-0.750)	0.789 (0.630-0.999)	0.931 (0.727-1.21)	1.08 (0.822-1.44)	1.24 (0.917-1.70)	1.47 (1.04-2.10)	1.66 (1.13-2.45)
60-min	0.357 (0.299-0.430)	0.514 (0.430-0.621)	0.731 (0.609-0.886)	0.915 (0.756-1.12)	1.18 (0.939-1.49)	1.39 (1.08-1.80)	1.61 (1.23-2.14)	1.85 (1.37-2.53)	2.19 (1.55-3.13)	2.47 (1.69-3.66)
2-hr	0.528 (0.442-0.637)	0.719 (0.601-0.868)	0.975 (0.813-1.18)	1.19 (0.983-1.45)	1.49 (1.19-1.88)	1.72 (1.34-2.23)	1.97 (1.50-2.61)	2.23 (1.65-3.04)	2.59 (1.83-3.69)	2.88 (1.96-4.26)
3-hr	0.648 (0.542-0.782)	0.864 (0.723-1.04)	1.15 (0.961-1.40)	1.39 (1.15-1.70)	1.72 (1.38-2.18)	1.98 (1.55-2.57)	2.25 (1.71-2.99)	2.53 (1.87-3.46)	2.92 (2.07-4.17)	3.23 (2.21-4.79)
6-hr	0.919 (0.769-1.11)	1.20 (1.01-1.45)	1.58 (1.32-1.91)	1.89 (1.56-2.31)	2.32 (1.85-2.93)	2.65 (2.07-3.43)	2.99 (2.28-3.97)	3.35 (2.47-4.58)	3.84 (2.71-5.48)	4.22 (2.88-6.25)
12-hr	1.20 (1.01-1.45)	1.58 (1.32-1.90)	2.07 (1.73-2.51)	2.48 (2.05-3.03)	3.05 (2.43-3.86)	3.49 (2.73-4.52)	3.95 (3.00-5.24)	4.42 (3.27-6.05)	5.08 (3.59-7.26)	5.60 (3.82-8.29)
24-hr	1.56 (1.38-1.80)	2.06 (1.82-2.38)	2.75 (2.42-3.18)	3.31 (2.90-3.87)	4.11 (3.48-4.95)	4.74 (3.93-5.83)	5.39 (4.37-6.79)	6.08 (4.80-7.87)	7.05 (5.34-9.49)	7.82 (5.73-10.9)

2-day	**1.84** (1.63-2.13)	**2.49** (2.20-2.87)	**3.36** (2.96-3.90)	**4.10** (3.59-4.79)	**5.14** (4.36-6.20)	**5.98** (4.96-7.35)	**6.85** (5.55-8.63)	**7.78** (6.13-10.1)	**9.09** (6.88-12.2)	**10.1** (7.43-14.1)
3-day	**1.95** (1.73-2.25)	**2.67** (2.36-3.09)	**3.66** (3.23-4.24)	**4.50** (3.93-5.25)	**5.68** (4.81-6.85)	**6.64** (5.51-8.16)	**7.64** (6.19-9.63)	**8.72** (6.88-11.3)	**10.2** (7.76-13.8)	**11.5** (8.41-16.0)
4-day	**2.09** (1.85-2.42)	**2.90** (2.56-3.35)	**4.01** (3.53-4.64)	**4.95** (4.33-5.78)	**6.29** (5.33-7.59)	**7.38** (6.12-9.08)	**8.53** (6.91-10.7)	**9.76** (7.70-12.6)	**11.5** (8.72-15.5)	**12.9** (9.48-18.0)
7-day	**2.35** (2.08-2.72)	**3.33** (2.94-3.85)	**4.69** (4.13-5.43)	**5.85** (5.12-6.83)	**7.53** (6.38-9.08)	**8.90** (7.38-10.9)	**10.4** (8.39-13.0)	**11.9** (9.41-15.4)	**14.2** (10.8-19.1)	**16.1** (11.8-22.4)
10-day	**2.48** (2.19-2.86)	**3.56** (3.14-4.11)	**5.06** (4.46-5.86)	**6.36** (5.56-7.42)	**8.24** (6.97-9.93)	**9.78** (8.11-12.0)	**11.4** (9.27-14.4)	**13.2** (10.4-17.1)	**15.8** (12.0-21.3)	**18.0** (13.2-25.1)
20-day	**2.91** (2.57-3.36)	**4.24** (3.75-4.90)	**6.13** (5.40-7.10)	**7.79** (6.81-9.09)	**10.2** (8.65-12.3)	**12.2** (10.2-15.1)	**14.4** (11.7-18.2)	**16.9** (13.3-21.8)	**20.4** (15.5-27.5)	**23.4** (17.1-32.6)
30-day	**3.47** (3.07-4.00)	**5.06** (4.46-5.84)	**7.33** (6.46-8.49)	**9.34** (8.16-10.9)	**12.3** (10.4-14.9)	**14.8** (12.3-18.2)	**17.6** (14.2-22.1)	**20.6** (16.3-26.7)	**25.1** (19.0-33.8)	**28.9** (21.2-40.3)
45-day	**4.07** (3.60-4.69)	**5.85** (5.17-6.76)	**8.44** (7.44-9.78)	**10.8** (9.40-12.6)	**14.2** (12.0-17.1)	**17.2** (14.2-21.1)	**20.4** (16.5-25.7)	**24.0** (19.0-31.1)	**29.5** (22.3-39.7)	**34.1** (25.0-47.6)
60-day	**4.76** (4.21-5.49)	**6.73** (5.94-7.78)	**9.61** (8.46-11.1)	**12.2** (10.7-14.2)	**16.1** (13.6-19.4)	**19.5** (16.1-23.9)	**23.2** (18.8-29.2)	**27.4** (21.6-35.4)	**33.7** (25.6-45.4)	**39.2** (28.7-54.6)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

Estimates from the table in csv format: precipitation frequency estimates Submit

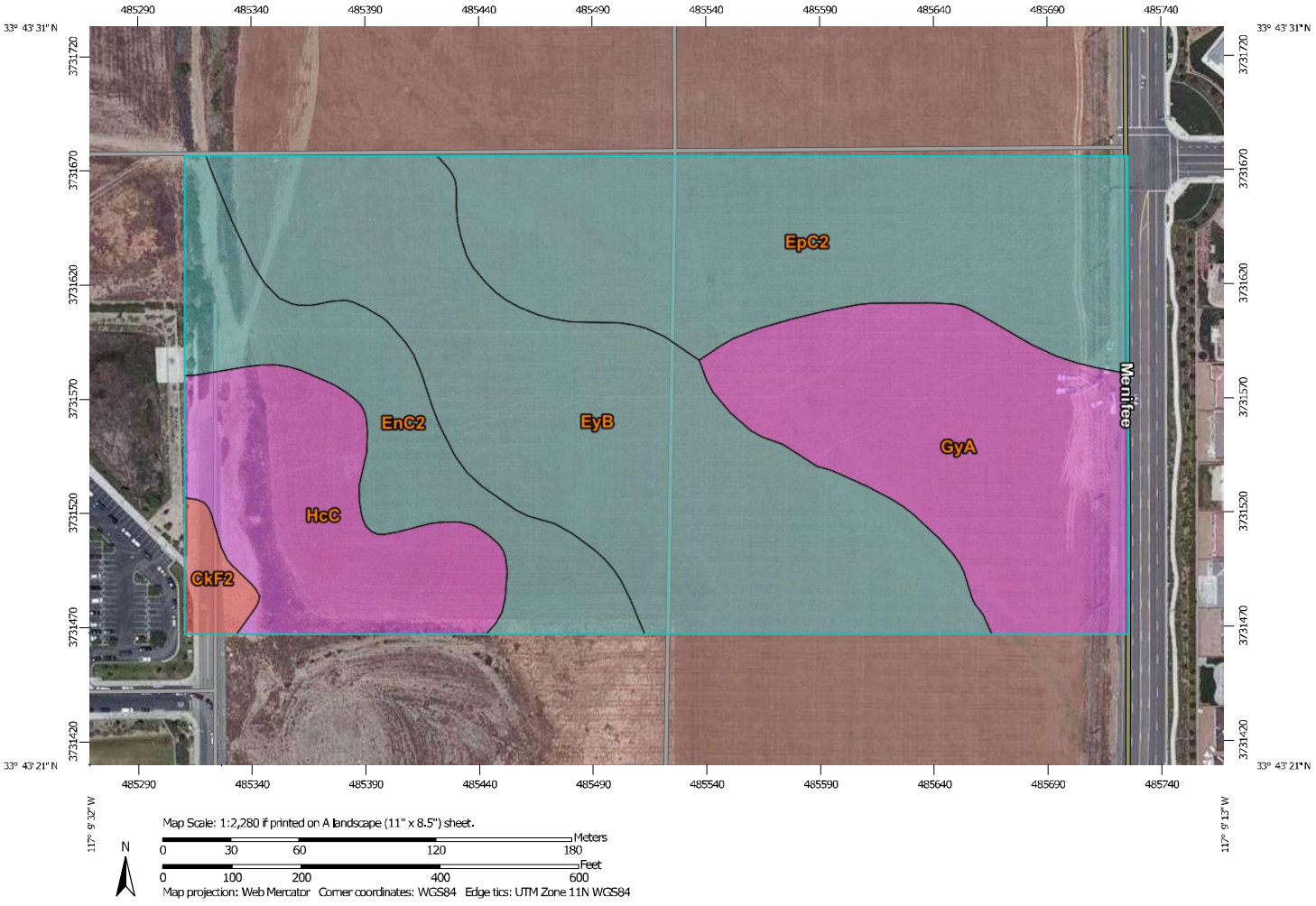
Main Link Categories:
Home | OHD

US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
Office of Hydrologic Development
1325 East West Highway
Silver Spring, MD 20910
Page Author: HDSC webmaster
Page last modified: August 27, 2014

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Hydrologic Soil Group—Western Riverside Area, California
(Tuffli Property - APN's 333-070-018, 019 & 053)



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Western Riverside Area, California
Survey Area Data: Version 6, Dec 9, 2013

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 3, 2010—Jun 19, 2010

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Western Riverside Area, California (CA679)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
CkF2	Cieneba rocky sandy loam, 15 to 50 percent slopes, erod ed	D	0.3	1.5%
EnC2	Exeter sandy loam, 2 to 8 percent slopes, eroded	C	2.4	11.3%
EpC2	Exeter sandy loam, deep, 2 to 8 percent slopes, eroded	C	5.4	25.0%
EyB	Exeter very fine sandy loam, deep, 0 to 5 percent slope s	C	6.7	30.9%
GyA	Greenfield sandy loam, 0 to 2 percent slopes	A	4.2	19.3%
HcC	Hanford coarse sandy loam, 2 to 8 percent slopes	A	2.6	12.1%
Totals for Area of Interest			**21.5**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

EXISTING CONDITION 2YR-24HR FLOWS AND VOLUMES USING RCFC&WCD RATIONAL METHOD AND SUH

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
Rational Hydrology Study Date: 12/21/22 File:vjpexist2yr.out

Village at Junipero - Existing Condition - 2-yr-24hr

********* Hydrology Study Control Information **********

English (in-lb) Units used in input data file

Program License Serial Number 6351

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 2.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [Homeland-Winchester] area used.
10 year storm 10 minute intensity = 2.030(In/Hr)
10 year storm 60 minute intensity = 0.800(In/Hr)
100 year storm 10 minute intensity = 3.050(In/Hr)
100 year storm 60 minute intensity = 1.200(In/Hr)

Storm event year = 2.0
Calculated rainfall intensity data:
1 hour intensity = 0.520(In/Hr)
Slope of intensity duration curve = 0.5200

++
Process from Point/Station 1.000 to Point/Station 2.000
**** INITIAL AREA EVALUATION ****

```
Initial area flow distance =   748.000(Ft.)
Top (of initial area) elevation =  1464.500(Ft.)
Bottom (of initial area) elevation =  1460.300(Ft.)
Difference in elevation =     4.200(Ft.)
Slope =    0.00561  s(percent)=       0.56
TC = k(0.710)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   28.246 min.
Rainfall intensity =      0.770(In/Hr) for a     2.0 year storm
UNDEVELOPED (fair cover) subarea
Runoff Coefficient = 0.461
Decimal fraction soil group A = 0.500
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.500
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  64.50
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =      3.264(CFS)
Total initial stream area =        9.200(Ac.)
Pervious area fraction = 1.000


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        2.000 to Point/Station        3.000
**** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Top of natural channel elevation =   1460.300(Ft.)
End of natural channel elevation =   1459.800(Ft.)
Length of natural channel  =   631.000(Ft.)
Estimated mean flow rate at midpoint of channel =      4.801(CFS)

Natural valley channel type used
L.A. County flood control district formula for channel velocity:
 Velocity(ft/s) = (7 + 8(q(English Units)^.352)(slope^0.5)
Velocity using mean channel flow =   0.59(Ft/s)

Correction to map slope used on extremely rugged channels with
drops and waterfalls (Plate D-6.2)
        Normal channel slope =  0.0008
Corrected/adjusted channel slope =  0.0008
Travel time =   17.88 min.     TC =   46.12  min.


 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.609
Decimal fraction soil group A = 0.200
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.750
Decimal fraction soil group D = 0.050
RI index for soil(AMC 2)  =  82.35
```

Pervious area fraction = 1.000; Impervious fraction = 0.000
Rainfall intensity = 0.597(In/Hr) for a 2.0 year storm
Subarea runoff = 3.145(CFS) for 8.660(Ac.)
Total runoff = 6.409(CFS) Total area = 17.860(Ac.)
End of computations, total study area = 17.86 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged RI index number = 73.2

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
Study date 12/21/22 File: vjpexist2yr24vol242.out

++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6351

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Village at Junipero - Volume

Drainage Area = 17.86(Ac.) = 0.028 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 17.86(Ac.) = 0.028 Sq. Mi.
Length along longest watercourse = 1379.00(Ft.)
Length along longest watercourse measured to centroid = 690.00(Ft.)
Length along longest watercourse = 0.261 Mi.
Length along longest watercourse measured to centroid = 0.131 Mi.
Difference in elevation = 4.70(Ft.)
Slope along watercourse = 17.9956 Ft./Mi.

Average Manning's 'N' = 0.030
Lag time = 0.115 Hr.
Lag time = 6.91 Min.
25% of lag time = 1.73 Min.
40% of lag time = 2.76 Min.
Unit time = 15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
17.86	2.06	36.79

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
17.86	5.39	96.27

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 2.060(In)
Area Averaged 100-Year Rainfall = 5.390(In)

Point rain (area averaged) = 2.060(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 2.060(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
17.860	84.00	0.050

Total Area Entered = 17.86(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
84.0	84.0	0.198	0.050	0.189	1.000	0.189

Sum (F) = 0.189

Area averaged mean soil loss (F) (In/Hr) = 0.189
Minimum soil loss rate ((In/Hr)) = 0.095
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.250	217.017	46.194	8.315
2	0.500	434.034	42.198	7.595
3	0.750	651.051	8.145	1.466
4	1.000	868.069	3.464	0.623
			Sum = 100.000	Sum= 18.000

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max		Low	Effective (In/Hr)
1	0.25	0.20	0.016	(0.335)		0.015	0.002
2	0.50	0.30	0.025	(0.331)		0.022	0.002
3	0.75	0.30	0.025	(0.327)		0.022	0.002
4	1.00	0.40	0.033	(0.323)		0.030	0.003
5	1.25	0.30	0.025	(0.319)		0.022	0.002
6	1.50	0.30	0.025	(0.315)		0.022	0.002
7	1.75	0.30	0.025	(0.312)		0.022	0.002
8	2.00	0.40	0.033	(0.308)		0.030	0.003
9	2.25	0.40	0.033	(0.304)		0.030	0.003
10	2.50	0.40	0.033	(0.300)		0.030	0.003

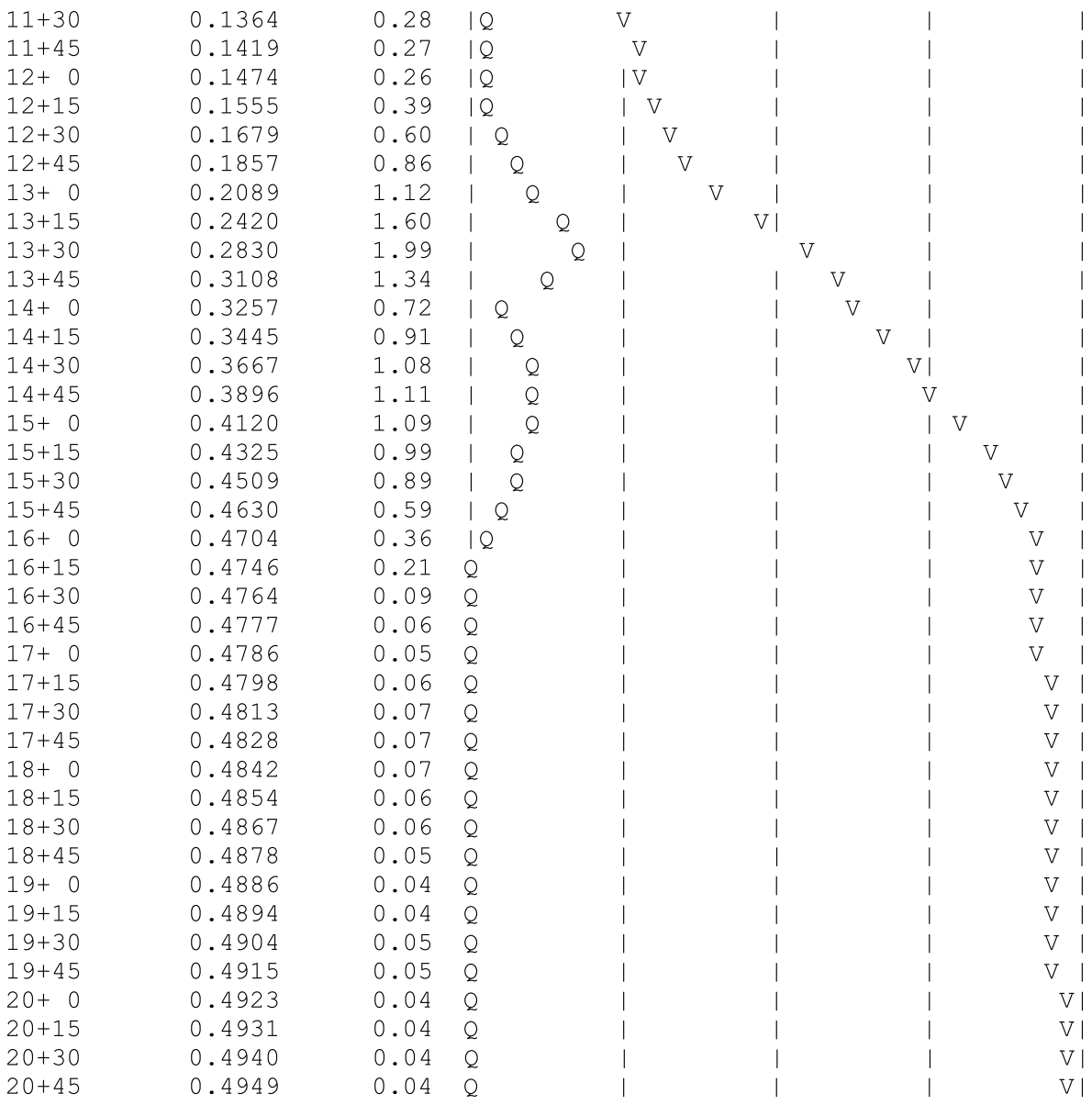
11	2.75	0.50	0.041	(0.297)	0.037	0.004
12	3.00	0.50	0.041	(0.293)	0.037	0.004
13	3.25	0.50	0.041	(0.290)	0.037	0.004
14	3.50	0.50	0.041	(0.286)	0.037	0.004
15	3.75	0.50	0.041	(0.282)	0.037	0.004
16	4.00	0.60	0.049	(0.279)	0.044	0.005
17	4.25	0.60	0.049	(0.275)	0.044	0.005
18	4.50	0.70	0.058	(0.272)	0.052	0.006
19	4.75	0.70	0.058	(0.268)	0.052	0.006
20	5.00	0.80	0.066	(0.265)	0.059	0.007
21	5.25	0.60	0.049	(0.261)	0.044	0.005
22	5.50	0.70	0.058	(0.258)	0.052	0.006
23	5.75	0.80	0.066	(0.255)	0.059	0.007
24	6.00	0.80	0.066	(0.251)	0.059	0.007
25	6.25	0.90	0.074	(0.248)	0.067	0.007
26	6.50	0.90	0.074	(0.245)	0.067	0.007
27	6.75	1.00	0.082	(0.241)	0.074	0.008
28	7.00	1.00	0.082	(0.238)	0.074	0.008
29	7.25	1.00	0.082	(0.235)	0.074	0.008
30	7.50	1.10	0.091	(0.232)	0.082	0.009
31	7.75	1.20	0.099	(0.228)	0.089	0.010
32	8.00	1.30	0.107	(0.225)	0.096	0.011
33	8.25	1.50	0.124	(0.222)	0.111	0.012
34	8.50	1.50	0.124	(0.219)	0.111	0.012
35	8.75	1.60	0.132	(0.216)	0.119	0.013
36	9.00	1.70	0.140	(0.213)	0.126	0.014
37	9.25	1.90	0.157	(0.210)	0.141	0.016
38	9.50	2.00	0.165	(0.207)	0.148	0.016
39	9.75	2.10	0.173	(0.204)	0.156	0.017
40	10.00	2.20	0.181	(0.201)	0.163	0.018
41	10.25	1.50	0.124	(0.198)	0.111	0.012
42	10.50	1.50	0.124	(0.195)	0.111	0.012
43	10.75	2.00	0.165	(0.192)	0.148	0.016
44	11.00	2.00	0.165	(0.190)	0.148	0.016
45	11.25	1.90	0.157	(0.187)	0.141	0.016
46	11.50	1.90	0.157	(0.184)	0.141	0.016
47	11.75	1.70	0.140	(0.181)	0.126	0.014
48	12.00	1.80	0.148	(0.179)	0.133	0.015

49	12.25	2.50	0.206	0.176	(0.185)	0.030
50	12.50	2.60	0.214	0.173	(0.193)	0.041
51	12.75	2.80	0.231	0.171	(0.208)	0.060
52	13.00	2.90	0.239	0.168	(0.215)	0.071
53	13.25	3.40	0.280	0.166	(0.252)	0.115
54	13.50	3.40	0.280	0.163	(0.252)	0.117
55	13.75	2.30	0.190	0.161	(0.171)	0.029
56	14.00	2.30	0.190	0.158	(0.171)	0.031
57	14.25	2.70	0.222	0.156	(0.200)	0.067
58	14.50	2.60	0.214	0.153	(0.193)	0.061
59	14.75	2.60	0.214	0.151	(0.193)	0.063
60	15.00	2.50	0.206	0.149	(0.185)	0.057
61	15.25	2.40	0.198	0.146	(0.178)	0.051
62	15.50	2.30	0.190	0.144	(0.171)	0.045
63	15.75	1.90	0.157	(0.142)	0.141	0.016
64	16.00	1.90	0.157	0.140	(0.141)	0.017
65	16.25	0.40	0.033	(0.138)	0.030	0.003
66	16.50	0.40	0.033	(0.136)	0.030	0.003
67	16.75	0.30	0.025	(0.134)	0.022	0.002
68	17.00	0.30	0.025	(0.132)	0.022	0.002
69	17.25	0.50	0.041	(0.130)	0.037	0.004
70	17.50	0.50	0.041	(0.128)	0.037	0.004
71	17.75	0.50	0.041	(0.126)	0.037	0.004
72	18.00	0.40	0.033	(0.124)	0.030	0.003
73	18.25	0.40	0.033	(0.122)	0.030	0.003
74	18.50	0.40	0.033	(0.120)	0.030	0.003
75	18.75	0.30	0.025	(0.119)	0.022	0.002
76	19.00	0.20	0.016	(0.117)	0.015	0.002
77	19.25	0.30	0.025	(0.115)	0.022	0.002
78	19.50	0.40	0.033	(0.114)	0.030	0.003
79	19.75	0.30	0.025	(0.112)	0.022	0.002
80	20.00	0.20	0.016	(0.111)	0.015	0.002
81	20.25	0.30	0.025	(0.109)	0.022	0.002
82	20.50	0.30	0.025	(0.108)	0.022	0.002
83	20.75	0.30	0.025	(0.106)	0.022	0.002
84	21.00	0.20	0.016	(0.105)	0.015	0.002
85	21.25	0.30	0.025	(0.104)	0.022	0.002
86	21.50	0.20	0.016	(0.103)	0.015	0.002

```
87  21.75     0.30      0.025       (  0.101)       0.022         0.002
88  22.00     0.20      0.016       (  0.100)       0.015         0.002
89  22.25     0.30      0.025       (  0.099)       0.022         0.002
90  22.50     0.20      0.016       (  0.098)       0.015         0.002
91  22.75     0.20      0.016       (  0.098)       0.015         0.002
92  23.00     0.20      0.016       (  0.097)       0.015         0.002
93  23.25     0.20      0.016       (  0.096)       0.015         0.002
94  23.50     0.20      0.016       (  0.096)       0.015         0.002
95  23.75     0.20      0.016       (  0.095)       0.015         0.002
96  24.00     0.20      0.016       (  0.095)       0.015         0.002
          (Loss Rate Not Used)
   Sum =     100.0                                    Sum =     1.4
    Flood volume = Effective rainfall      0.34(In)
     times area      17.9(Ac.)/[(In)/(Ft.)] =       0.5(Ac.Ft)
    Total soil loss =      1.72(In)
    Total soil loss =     2.561(Ac.Ft)
    Total rainfall =      2.06(In)
    Flood volume =       21971.3 Cubic Feet
    Total soil loss =      111577.6 Cubic Feet
    ---------------------------------------------------------------------
     Peak flow rate of this hydrograph =      1.985(CFS)
    ---------------------------------------------------------------------
    +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        24 - H O U R    S T O R M
                    R u n o f f      H y d r o g r a p h
    ---------------------------------------------------------------------
                Hydrograph in  15   Minute intervals ((CFS))

    ---------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
-------------------------------------------------------------------------
  0+15       0.0003      0.01  Q         |         |         |         |
  0+30       0.0010      0.03  Q         |         |         |         |
  0+45       0.0018      0.04  Q         |         |         |         |
  1+ 0       0.0029      0.05  Q         |         |         |         |
  1+15       0.0039      0.05  Q         |         |         |         |
  1+30       0.0049      0.05  Q         |         |         |         |
  1+45       0.0058      0.05  Q         |         |         |         |
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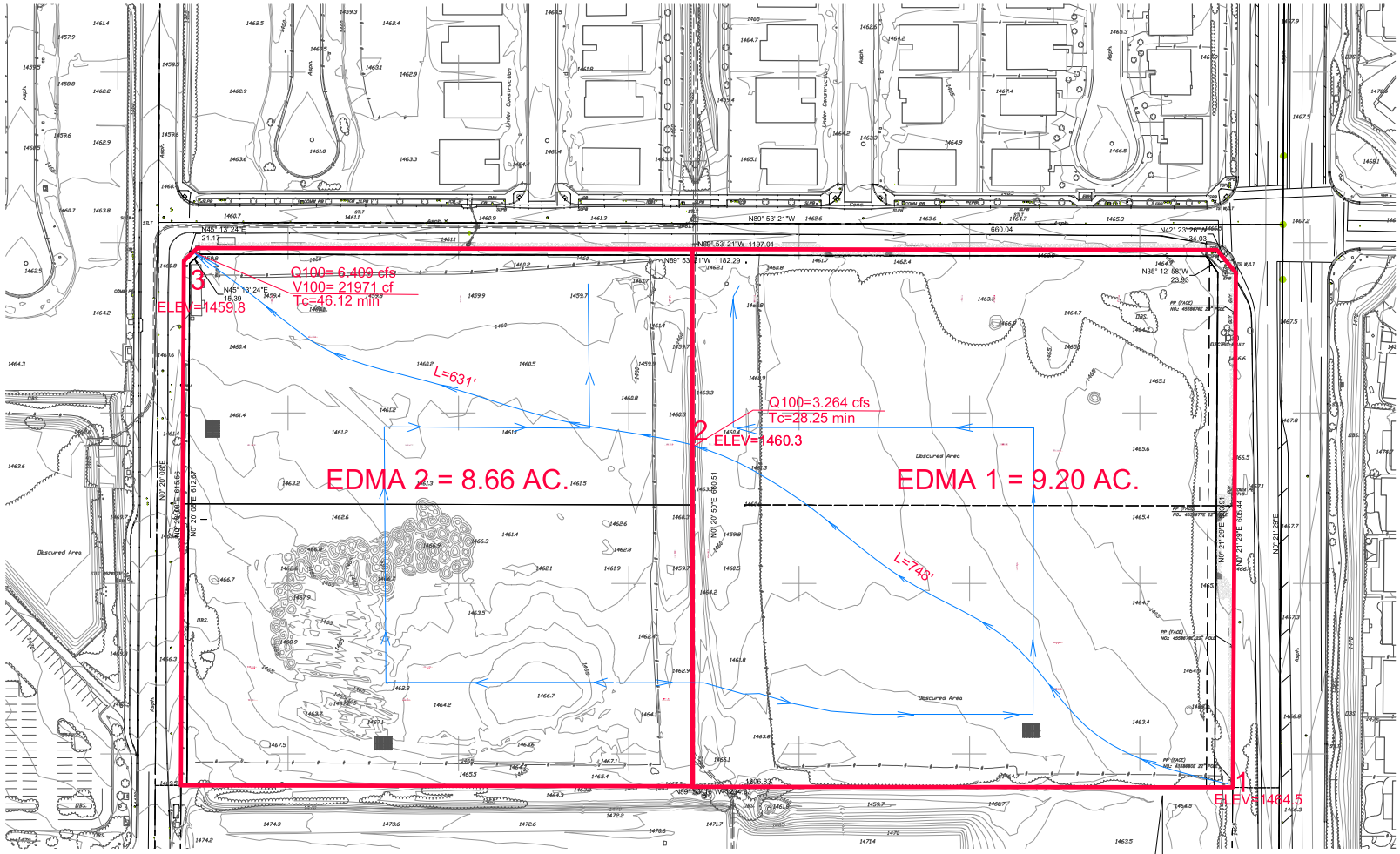
2+ 0	0.0069	0.05	Q	|	|	|	|
2+15	0.0081	0.06	Q	|	|	|	|
2+30	0.0093	0.06	Q	|	|	|	|
2+45	0.0106	0.07	Q	|	|	|	|
3+ 0	0.0121	0.07	Q	|	|	|	|
3+15	0.0137	0.07	QV	|	|	|	|
3+30	0.0152	0.07	QV	|	|	|	|
3+45	0.0167	0.07	QV	|	|	|	|
4+ 0	0.0184	0.08	QV	|	|	|	|
4+15	0.0202	0.09	QV	|	|	|	|
4+30	0.0222	0.10	QV	|	|	|	|
4+45	0.0243	0.10	QV	|	|	|	|
5+ 0	0.0266	0.11	Q V	|	|	|	|
5+15	0.0287	0.10	Q V	|	|	|	|
5+30	0.0307	0.10	Q V	|	|	|	|
5+45	0.0330	0.11	Q V	|	|	|	|
6+ 0	0.0354	0.12	Q V	|	|	|	|
6+15	0.0380	0.13	Q V	|	|	|	|
6+30	0.0407	0.13	Q V	|	|	|	|
6+45	0.0436	0.14	Q V	|	|	|	|
7+ 0	0.0466	0.15	Q V	|	|	|	|
7+15	0.0497	0.15	Q V	|	|	|	|
7+30	0.0529	0.16	Q V	|	|	|	|
7+45	0.0564	0.17	Q V	|	|	|	|
8+ 0	0.0602	0.18	Q V	|	|	|	|
8+15	0.0644	0.20	Q V	|	|	|	|
8+30	0.0689	0.22	Q V	|	|	|	|
8+45	0.0736	0.23	Q V	|	|	|	|
9+ 0	0.0786	0.24	Q V	|	|	|	|
9+15	0.0841	0.26	|Q V	|	|	|	|
9+30	0.0900	0.28	|Q V	|	|	|	|
9+45	0.0962	0.30	|Q V	|	|	|	|
10+ 0	0.1027	0.32	|Q V	|	|	|	|
10+15	0.1084	0.28	|Q V	|	|	|	|
10+30	0.1133	0.23	Q V	|	|	|	|
10+45	0.1186	0.26	|Q V|	|	|	|	|
11+ 0	0.1246	0.29	|Q V|	|	|	|	|
11+15	0.1305	0.29	|Q V	|	|	|	|


11+30 0.1364 0.28
11+45 0.1419 0.27
12+ 0 0.1474 0.26
12+15 0.1555 0.39
12+30 0.1679 0.60
12+45 0.1857 0.86
13+ 0 0.2089 1.12
13+15 0.2420 1.60
13+30 0.2830 1.99
13+45 0.3108 1.34
14+ 0 0.3257 0.72
14+15 0.3445 0.91
14+30 0.3667 1.08
14+45 0.3896 1.11
15+ 0 0.4120 1.09
15+15 0.4325 0.99
15+30 0.4509 0.89
15+45 0.4630 0.59
16+ 0 0.4704 0.36
16+15 0.4746 0.21
16+30 0.4764 0.09
16+45 0.4777 0.06
17+ 0 0.4786 0.05
17+15 0.4798 0.06
17+30 0.4813 0.07
17+45 0.4828 0.07
18+ 0 0.4842 0.07
18+15 0.4854 0.06
18+30 0.4867 0.06
18+45 0.4878 0.05
19+ 0 0.4886 0.04
19+15 0.4894 0.04
19+30 0.4904 0.05
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20+30 0.4940 0.04
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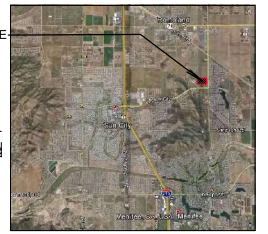
21+ 0	0.4956	0.04	Q	|	|	|	V|
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21+30	0.4972	0.04	Q	|	|	|	V|
21+45	0.4980	0.04	Q	|	|	|	V|
22+ 0	0.4987	0.04	Q	|	|	|	V|
22+15	0.4995	0.04	Q	|	|	|	V|
22+30	0.5003	0.04	Q	|	|	|	V|
22+45	0.5009	0.03	Q	|	|	|	V|
23+ 0	0.5015	0.03	Q	|	|	|	V|
23+15	0.5021	0.03	Q	|	|	|	V|
23+30	0.5027	0.03	Q	|	|	|	V|
23+45	0.5034	0.03	Q	|	|	|	V|
24+ 0	0.5040	0.03	Q	|	|	|	V|
24+15	0.5043	0.02	Q	|	|	|	V|
24+30	0.5044	0.00	Q	|	|	|	V|
24+45	0.5044	0.00	Q	|	|	|	V|

POST CONDITION 2YR-24HR FLOWS AND VOLUMES USING RCFC&WCD RATIONAL METHOD AND SUH

HYDROLOGY MAPS – 2YR/24HR



PROJECT SITE



VICINITY MAP NTS

OWNER/APPLICANT: NORTH BAYPORT INDUSTRIAL PARK II, LTD.
2245 W. 190TH STREET
TORRANCE, CALIFORNIA 90504
PH: (310) 326-2530 FAX: (310) 326-5113
CONTACT: DON CARRUTH
e-mail:DRC@TUFFLI.COM

ENGINEER/ REPRESENTATIVE: CHRISTIANSEN & COMPANY
5225 CANYON CREST DRIVE, STE. 251
RIVERSIDE, CALIFORNIA 92507
PH: (951) 323-4713 FAX: (951) 405-8410
CONTACT: KEITH CHRISTIANSEN, P.E.
e-mail: KEITH@CCOCIVIL.COM

ARCHITECT: HUMPHREYS & PARTNERS, ARCHITECTS, L.P.
2350 SE BRISTOL STREET, SUITE 310
NEWPORT BEACH, CALIFORNIA 92660
PH: (949) 955-9400 FAX: (949) 955-1897
CONTACT: SOONG KIM
e-mail: SOONG@HUMPHREYS.COM

GEOTECHNICAL: NorCal ENGINEERING
10641 HUMBOLT STREET
LOS ALAMITOS, CALIFORNIA 90720
PH:(562) 799-9469
CONTACT: STEVE SPENSIERO

ADDRESS: XXXX JUNIPERO ROAD
MENIFEE, CALIFORNIA 92224

ASSESSOR PARCEL NUMBERS: 333-070-018, 333-070-019 & 333-070-053

ACREAGE: 17.87 ACRES (gross) 17.27 ACRES (net)

FEMA MAP: PANEL: 06025C2060G
ZONE: X

THOMAS BROS.: PG 838, GRID F4, G4 - 2014 ED.

UTILITY PURVEYORS: WATER - EMWD
SEWER - EMWD
ELECTRIC- EDISON
GAS- SOUTHERN CAL GAS
PHONE- VERIZON
CABLE- TIME WARNER

SCHOOL DISTRICT: MENIFEE UNION SCHOOL DISTRICT

TOPOGRAPHY: DAWSON SURVEYING, INC.
575 E. CARREON DRIVE
COLTON, CA. 92324
CONTACT: BOB DAWSON
e-mail: robertd@dsils.com
DATE SURVEYED: 9/27/2021

LEGAL DESCRIPTION: LOTS 964, 965, 970 & 971 OF ROMOLA FARMS NO. 10 AS SHOWN BY MAP ON FILE IN BOOK 15 AT PAGES 29 THROUGH 31OF MAPS IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY,TOGETHER WITH THAT PORTION OF THE EASTERLY20 FEET OF LOT "H" (JUNIPERO ROAD) AS SHOWN ON SAID MAP VACATED BY THE BOARD OF SUPERVISORS OF THE COUNTY OF RIVERSIDE, RECORDED FEBRUARY 6, 1962 AS INSTRUMENT NO. 11656 OF OFFICIAL RECORDS.

LAND USE

EXISTING: VACANT
PROPOSED: RESIDENTIAL-APARTMENT

ZONING

EXISTING: R-2
PROPOSED: R-2

GENERAL PLAN DESIGNATION = MDR

0 30 60 120 180 240
SCALE: 1"= 60'

NOTES:

STREET VACATIONS FOR THE NORTH SOUTH ROAD THROUGH THE CENTER OF PROJECT SHALL BE PART OF FINAL MAPPING OF TENTATIVE TRACT NO. 38340.
PROPERTY IS NOT SUBJECT TO LIQUEFACTION OR OTHER GEOLOGIC HAZARDS.
PROPERTY IS NOT SUBJECT TO OVERFLOW, INUNDATION OR FLOOD HAZARD.

DATE PREPARED:12/16/21

Call before you dig
Avoid cutting underground utility lines. It's costly.
Call 811 or 1-800-227-2600

REVISIONS

SHT.	DESCRIPTION	DATE	BY	APRD

ENGINEER LOGO
Christiansen & Company
Land Development · Design · Engineering
Est. 2007
5225 Canyon Crest Drive, Ste 251
Riverside, California 92507
Ph: 951-323-4713 Fax: 951-405-8410
email:keith@ccocivil.com

ENGINEER SEAL
REGISTERED PROFESSIONAL ENGINEER
KEITH A. CHRISTIANSEN
No. 50081
Civil
STATE OF CALIFORNIA

SCALE: 1" = 60'
DESIGN: KAC
DRAWN: CG
CHECKED: KAC
APPROVED:KAC
DATE: DEC. 12, 2021

CITY OF MENIFEE
ENGINEERING DEPARTMENT

JONATHAN G. SMITH RCE 61253 DATE
DIRECTOR OF PUBLIC WORKS/ CITY ENGINEER EXP. 6/30/23

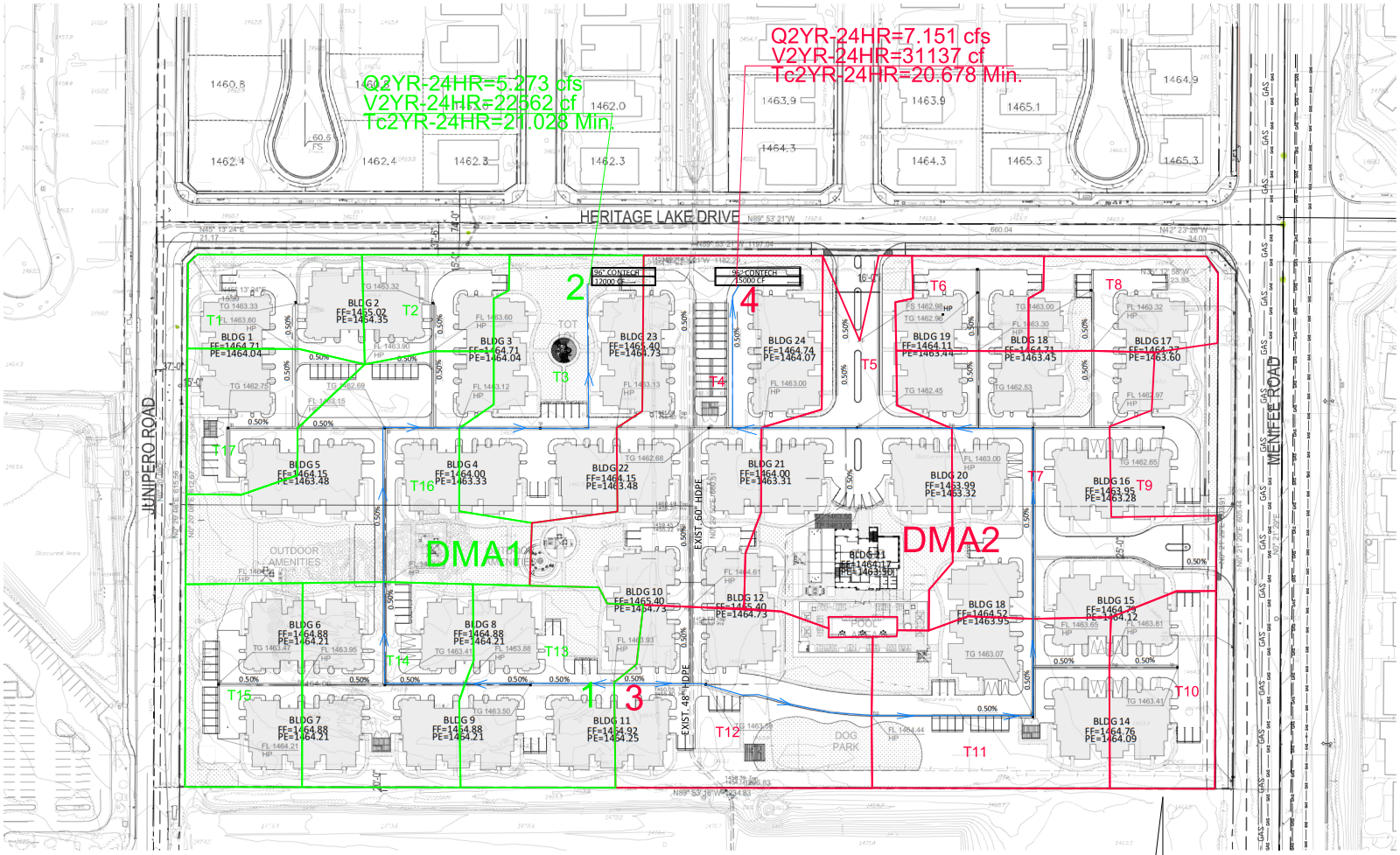
RECOMMENDED BY: DATE

SEAL

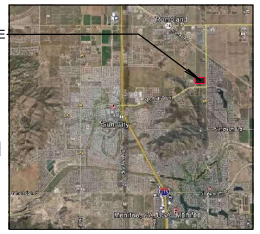
CITY OF MENIFEE ENGINEERING DEPARTMENT

VILLAGE AT JUNIPERO
Tentative Tract Map No. 38340
EXIST HYDROLOGY MAP – 2yr–24hr

SHEET NO.
HYD–1
1 OF 1
PROJECT NO: HYD



PROJECT SITE



VICINITY MAP NTS

OWNER/APPLICANT: NORTH BAYPORT INDUSTRIAL PARK II, LTD.
2245 W. 190TH STREET
TORRANCE, CALIFORNIA 90504
PH: (310) 326-2530 FAX: (310) 326-5113
CONTACT: DON CARRUTH
e-mail:DRC@TUFFLI.COM

ENGINEER/ REPRESENTATIVE: CHRISTIANSEN & COMPANY
5225 CANYON CREST DRIVE, STE. 251
RIVERSIDE, CALIFORNIA 92507
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CONTACT: KEITH CHRISTIANSEN, P.E.
e-mail: KEITH@CCOCIVIL.COM

ARCHITECT: HUMPHREYS & PARTNERS, ARCHITECTS, L.P.
2350 SE BRISTOL STREET, SUITE 310
NEWPORT BEACH, CALIFORNIA 92660
PH: (949) 955-9400 FAX: (949) 955-1897
CONTACT: SOONG KIM
e-mail: SOONG@HUMPHREYS.COM

GEOTECHNICAL: NorCal ENGINEERING
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LOS ALAMITOS, CALIFORNIA 90720
PH:(562) 799-9469
CONTACT: STEVE SPENSIERO

ADDRESS: XXXX JUNIPERO ROAD
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ACREAGE: 17.87 ACRES (gross) 17.27 ACRES (net)

FEMA MAP: PANEL: 06025C2060G
ZONE: X

THOMAS BROS.: PG 838, GRID F4, G4 - 2014 ED.

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ELECTRIC- EDISON
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PHONE- VERIZON
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SCHOOL DISTRICT: MENIFEE UNION SCHOOL DISTRICT

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e-mail: robertd@dsils.com
DATE SURVEYED: 9/27/2021

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TRIBUTARY DATA

DMA1 TRIBUTARY ITEM	DMA1 AREA (AC.)	DMA2 TRIBUTARY ITEM	DMA2 AREA (AC.)
T1	0.54	T10	0.63
T2	0.43	T11	1.24
T3	1.24	T12	1.35
T13	0.99	T4	1.93
T14	1.08	T5	1.55
T15	0.75	T6	0.39
T16	1.63	T7	1.85
T17	0.57	T8	0.54
		T9	0.47
TOTAL AREA	7.21 AC	TOTAL AREA	9.95 AC

	DMA1	DMA2	TOTAL
Q	5.273 cfs	7.151 cfs	12.424 cfs
V	22562 cf	31137 cf	53700 cf
Tc	21.028 min.	20.678 min.	20.678 min.

DATE PREPARED:12/21/22

LAND USE

EXISTING: VACANT
PROPOSED: RESIDENTIAL-APARTMENT

ZONING

EXISTING: R-2
PROPOSED: R-2

GENERAL PLAN DESIGNATION = MDR

0 30 60 120 180 240
SCALE: 1" = 60'

NOTES:

STREET VACATIONS FOR THE NORTH SOUTH ROAD THROUGH THE CENTER OF PROJECT SHALL BE PART OF FINAL MAPPING OF TENTATIVE TRACT NO. 38340.
PROPERTY IS NOT SUBJECT TO LIQUEFACTION OR OTHER GEOLOGIC HAZARDS.
PROPERTY IS NOT SUBJECT TO OVERFLOW, INUNDATION OR FLOOD HAZARD.

Call before you Dig
Avoid costly underground utility lines, it's easy.
Call 811 or 1-800-227-2600

REVISIONS

SHT.	DESCRIPTION	DATE	BY	APRD

ENGINEER LOGO
Christiansen & Company
Land Development · Design · Engineering
Est. 2007
5225 Canyon Crest Drive, Ste 251
Riverside, California 92507
Ph: 951-323-4713 Fax: 951-400-8410
email:keith@ccocivil.com

ENGINEER SEAL
KEITH A. CHRISTIANSEN No. 50084 Civil
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

SCALE: 1" = 60'
DESIGN: KAC
DRAWN: CG
CHECKED: KAC
APPROVED:KAC
DATE: DEC. 12, 2021

CITY OF MENIFEE
ENGINEERING DEPARTMENT

JONATHAN G. SMITH RCE 61253 DATE
DIRECTOR OF PUBLIC WORKS/ EXP. 6/30/23
CITY ENGINEER

RECOMMENDED BY: DATE

SEAL

CITY OF MENIFEE ENGINEERING DEPARTMENT

VILLAGE AT JUNIPERO
Tentative Tract Map No. 38340
POST DEVELOPMENT HYDROLOGY MAP 2YR-24HR

SHEET NO. HYD-1
1 OF 1
PROJECT NO: HYD

Appendix 8: Source Control

Pollutant Sources/Source Control Checklist

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

How to use this worksheet (also see instructions in Section G of the WQMP Template):

1. Review Column 1 and identify which of these potential sources of stormwater pollutants apply to your site. Check each box that applies.
2. Review Column 2 and incorporate all of the corresponding applicable BMPs in your WQMP Exhibit.
3. Review Columns 3 and 4 and incorporate all of the corresponding applicable permanent controls and operational BMPs in your WQMP. Use the format shown in Table G.1on page 23 of this WQMP Template. Describe your specific BMPs in an accompanying narrative, and explain any special conditions or situations that required omitting BMPs or substituting alternative BMPs for those shown here.

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 **Potential Sources of Runoff Pollutants**	**2** **Permanent Controls—Show on WQMP Drawings**	**3** **Permanent Controls—List in WQMP Table and Narrative**	**4** **Operational BMPs—Include in WQMP Table and Narrative**
☒ **A.** On-site storm drain inlets	☐ Locations of inlets.	☐ Mark all inlets with the words "Only Rain Down the Storm Drain" or similar. Catch Basin Markers may be available from the Riverside County Flood Control and Water Conservation District, call 951.955.1200 to verify.	☐ Maintain and periodically repaint or replace inlet markings. ☐ Provide stormwater pollution prevention information to new site owners, lessees, or operators. ☐ See applicable operational BMPs in Fact Sheet SC-44, "Drainage System Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com ☐ Include the following in lease agreements: "Tenant shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create a potential discharge to storm drains."
☒ **B.** Interior floor drains and elevator shaft sump pumps		☐ State that interior floor drains and elevator shaft sump pumps will be plumbed to sanitary sewer.	☐ Inspect and maintain drains to prevent blockages and overflow.
☐ **C.** Interior parking garages		☐ State that parking garage floor drains will be plumbed to the sanitary sewer.	☐ Inspect and maintain drains to prevent blockages and overflow.

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 **Potential Sources of Runoff Pollutants**	2 **Permanent Controls—Show on WQMP Drawings**	3 **Permanent Controls—List in WQMP Table and Narrative**	4 **Operational BMPs—Include in WQMP Table and Narrative**
❑ **D1.** Need for future indoor & structural pest control		❑ Note building design features that discourage entry of pests.	❑ Provide Integrated Pest Management information to owners, lessees, and operators.
❑ **D2.** Landscape/ Outdoor Pesticide Use	❑ Show locations of native trees or areas of shrubs and ground cover to be undisturbed and retained. ❑ Show self-retaining landscape areas, if any. ❑ Show stormwater treatment and hydrograph modification management BMPs. (See instructions in Chapter 3, Step 5 and guidance in Chapter 5.)	State that final landscape plans will accomplish all of the following. ❑ Preserve existing native trees, shrubs, and ground cover to the maximum extent possible. ❑ Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution. ❑ Where landscaped areas are used to retain or detain stormwater, specify plants that are tolerant of saturated soil conditions. ❑ Consider using pest-resistant plants, especially adjacent to hardscape. To insure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.	❑ Maintain landscaping using minimum or no pesticides. ❑ See applicable operational BMPs in "What you should know for…..Landscape and Gardening" at http://rcflood.org/stormwater/Error! Hyperlink reference not valid. ❑ Provide IPM information to new owners, lessees and operators.

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 **Potential Sources of Runoff Pollutants**	**2** **Permanent Controls—Show on WQMP Drawings**	**3** **Permanent Controls—List in WQMP Table and Narrative**	**4** **Operational BMPs—Include in WQMP Table and Narrative**
■ **E.** Pools, spas, ponds, decorative fountains, and other water features.	❑ Show location of water feature and a sanitary sewer cleanout in an accessible area within 10 feet. (Exception: Public pools must be plumbed according to County Department of Environmental Health Guidelines.)	If the Co-Permittee requires pools to be plumbed to the sanitary sewer, place a note on the plans and state in the narrative that this connection will be made according to local requirements.	❑ See applicable operational BMPs in "Guidelines for Maintaining Your Swimming Pool, Jacuzzi and Garden Fountain" at http://rcflood.org/stormwater/
❑ **F.** Food service	❑ For restaurants, grocery stores, and other food service operations, show location (indoors or in a covered area outdoors) of a floor sink or other area for cleaning floor mats, containers, and equipment. ❑ On the drawing, show a note that this drain will be connected to a grease interceptor before discharging to the sanitary sewer.	❑ Describe the location and features of the designated cleaning area. ❑ Describe the items to be cleaned in this facility and how it has been sized to insure that the largest items can be accommodated.	❑ See the brochure, "The Food Service Industry Best Management Practices for: Restaurants, Grocery Stores, Delicatessens and Bakeries" at http://rcflood.org/stormwater/ Provide this brochure to new site owners, lessees, and operators.
■ **G.** Refuse areas	❑ Show where site refuse and recycled materials will be handled and stored for pickup. See local municipal requirements for sizes and other details of refuse areas. ❑ If dumpsters or other receptacles are outdoors, show how the designated area will be covered, graded, and paved to prevent run-on and show locations of berms to prevent runoff from the area. ❑ Any drains from dumpsters, compactors, and tallow bin areas shall be connected to a grease removal device before discharge to sanitary sewer.	❑ State how site refuse will be handled and provide supporting detail to what is shown on plans. ❑ State that signs will be posted on or near dumpsters with the words "Do not dump hazardous materials here" or similar.	❑ State how the following will be implemented: Provide adequate number of receptacles. Inspect receptacles regularly; repair or replace leaky receptacles. Keep receptacles covered. Prohibit/prevent dumping of liquid or hazardous wastes. Post "no hazardous materials" signs. Inspect and pick up litter daily and clean up spills immediately. Keep spill control materials available on-site. See Fact Sheet SC-34, "Waste Handling and Disposal" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 **Potential Sources of Runoff Pollutants**	2 **Permanent Controls—Show on WQMP Drawings**	3 **Permanent Controls—List in WQMP Table and Narrative**	4 **Operational BMPs—Include in WQMP Table and Narrative**
❑ **H.** Industrial processes.	❑ Show process area.	❑ If industrial processes are to be located on site, state: "All process activities to be performed indoors. No processes to drain to exterior or to storm drain system."	❑ See Fact Sheet SC-10, "Non-Stormwater Discharges" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com See the brochure "Industrial & Commercial Facilities Best Management Practices for: Industrial, Commercial Facilities" at http://rcflood.org/stormwater/

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 **Potential Sources of Runoff Pollutants**	2 **Permanent Controls—Show on WQMP Drawings**	3 **Permanent Controls—List in WQMP Table and Narrative**	4 **Operational BMPs—Include in WQMP Table and Narrative**
❑ **I.** Outdoor storage of equipment or materials. (See rows J and K for source control measures for vehicle cleaning, repair, and maintenance.)	❑ Show any outdoor storage areas, including how materials will be covered. Show how areas will be graded and bermed to prevent run-on or run-off from area. ❑ Storage of non-hazardous liquids shall be covered by a roof and/or drain to the sanitary sewer system, and be contained by berms, dikes, liners, or vaults. ❑ Storage of hazardous materials and wastes must be in compliance with the local hazardous materials ordinance and a Hazardous Materials Management Plan for the site.	Include a detailed description of materials to be stored, storage areas, and structural features to prevent pollutants from entering storm drains. Where appropriate, reference documentation of compliance with the requirements of Hazardous Materials Programs for: ▪ Hazardous Waste Generation ▪ Hazardous Materials Release Response and Inventory ▪ California Accidental Release (CalARP) ▪ Aboveground Storage Tank ▪ Uniform Fire Code Article 80 Section 103(b) & (c) 1991 ▪ Underground Storage Tank www.cchealth.org/groups/hazmat/	❑ See the Fact Sheets SC-31, "Outdoor Liquid Container Storage" and SC-33, "Outdoor Storage of Raw Materials " in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 **Potential Sources of Runoff Pollutants**	2 **Permanent Controls—Show on WQMP Drawings**	3 **Permanent Controls—List in WQMP Table and Narrative**	4 **Operational BMPs—Include in WQMP Table and Narrative**
❑ **J.** Vehicle and Equipment Cleaning	❑ Show on drawings as appropriate: **(1) Commercial/industrial facilities having vehicle/equipment cleaning needs shall either provide a covered, bermed area for washing activities or discourage vehicle/equipment washing by removing hose bibs and installing signs prohibiting such uses.** **(2) Multi-dwelling complexes shall have a paved, bermed, and covered car wash area (unless car washing is prohibited on-site and hoses are provided with an automatic shut-off to discourage such use).** **(3) Washing areas for cars, vehicles, and equipment shall be paved, designed to prevent run-on to or runoff from the area, and plumbed to drain to the sanitary sewer.** **(4) Commercial car wash facilities shall be designed such that no runoff from the facility is discharged to the storm drain system. Wastewater from the facility shall discharge to the sanitary sewer, or a wastewater reclamation system shall be installed.**	❑ **If a car wash area is not provided, describe any measures taken to discourage on-site car washing and explain how these will be enforced.**	**Describe operational measures to implement the following (if applicable):** ❑ **Washwater from vehicle and equipment washing operations shall not be discharged to the storm drain system.** Refer to "Outdoor Cleaning Activities and Professional Mobile Service Providers" for many of the Potential Sources of Runoff Pollutants categories below. Brochure can be found at http://rcflood.org/stormwater/ ❑**Car dealerships and similar may rinse cars with water only.**

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 **Potential Sources of Runoff Pollutants**	**2** **Permanent Controls—Show on WQMP Drawings**	**3** **Permanent Controls—List in WQMP Table and Narrative**	**4** **Operational BMPs—Include in WQMP Table and Narrative**
❑ **K.** Vehicle/Equipment Repair and Maintenance	❑ Accommodate all vehicle equipment repair and maintenance indoors. Or designate an outdoor work area and design the area to prevent run-on and runoff of stormwater. ❑ Show secondary containment for exterior work areas where motor oil, brake fluid, gasoline, diesel fuel, radiator fluid, acid-containing batteries or other hazardous materials or hazardous wastes are used or stored. Drains shall not be installed within the secondary containment areas. ❑ Add a note on the plans that states either (1) there are no floor drains, or (2) floor drains are connected to wastewater pretreatment systems prior to discharge to the sanitary sewer and an industrial waste discharge permit will be obtained.	❑ State that no vehicle repair or maintenance will be done outdoors, or else describe the required features of the outdoor work area. ❑ State that there are no floor drains or if there are floor drains, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency's requirements. ❑ State that there are no tanks, containers or sinks to be used for parts cleaning or rinsing or, if there are, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency's requirements.	In the Stormwater Control Plan, note that all of the following restrictions apply to use the site: ❑ No person shall dispose of, nor permit the disposal, directly or indirectly of vehicle fluids, hazardous materials, or rinsewater from parts cleaning into storm drains. ❑ No vehicle fluid removal shall be performed outside a building, nor on asphalt or ground surfaces, whether inside or outside a building, except in such a manner as to ensure that any spilled fluid will be in an area of secondary containment. Leaking vehicle fluids shall be contained or drained from the vehicle immediately. ❑ No person shall leave unattended drip parts or other open containers containing vehicle fluid, unless such containers are in use or in an area of secondary containment. Refer to "Automotive Maintenance & Car Care Best Management Practices for Auto Body Shops, Auto Repair Shops, Car Dealerships, Gas Stations and Fleet Service Operations". Brochure can be found at http://rcflood.org/stormwater/ Refer to Outdoor Cleaning Activities and Professional Mobile Service Providers for many of the Potential Sources of Runoff Pollutants categories below. Brochure can be found at http://rcflood.org/stormwater/

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 **Potential Sources of Runoff Pollutants**	2 **Permanent Controls—Show on WQMP Drawings**	3 **Permanent Controls—List in WQMP Table and Narrative**	4 **Operational BMPs—Include in WQMP Table and Narrative**
❑ **L.** Fuel Dispensing Areas	❑ Fueling areas[6] shall have impermeable floors (i.e., portland cement concrete or equivalent smooth impervious surface) that are: a) graded at the minimum slope necessary to prevent ponding; and b) separated from the rest of the site by a grade break that prevents run-on of stormwater to the maximum extent practicable. ❑ Fueling areas shall be covered by a canopy that extends a minimum of ten feet in each direction from each pump. [Alternative: The fueling area must be covered and the cover's minimum dimensions must be equal to or greater than the area within the grade break or fuel dispensing area[1].] The canopy [or cover] shall not drain onto the fueling area.		❑ The property owner shall dry sweep the fueling area routinely. ❑ See the Fact Sheet SD-30 , "Fueling Areas" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

[6] The fueling area shall be defined as the area extending a minimum of 6.5 feet from the corner of each fuel dispenser or the length at which the hose and nozzle assembly may be operated plus a minimum of one foot, whichever is greater.

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 **Potential Sources of Runoff Pollutants**	2 **Permanent Controls—Show on WQMP Drawings**	3 **Permanent Controls—List in WQMP Table and Narrative**	4 **Operational BMPs—Include in WQMP Table and Narrative**
❑ **M.** Loading Docks	❑ Show a preliminary design for the loading dock area, including roofing and drainage. Loading docks shall be covered and/or graded to minimize run-on to and runoff from the loading area. Roof downspouts shall be positioned to direct stormwater away from the loading area. Water from loading dock areas shall be drained to the sanitary sewer, or diverted and collected for ultimate discharge to the sanitary sewer. ❑ Loading dock areas draining directly to the sanitary sewer shall be equipped with a spill control valve or equivalent device, which shall be kept closed during periods of operation. ❑ Provide a roof overhang over the loading area or install door skirts (cowling) at each bay that enclose the end of the trailer.		❑ Move loaded and unloaded items indoors as soon as possible. ❑ See Fact Sheet SC-30, "Outdoor Loading and Unloading," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 **Potential Sources of Runoff Pollutants**	2 **Permanent Controls—Show on WQMP Drawings**	3 **Permanent Controls—List in WQMP Table and Narrative**	4 **Operational BMPs—Include in WQMP Table and Narrative**
☒ **N.** Fire Sprinkler Test Water		☐ Provide a means to drain fire sprinkler test water to the sanitary sewer.	☐ See the note in Fact Sheet SC-41, "Building and Grounds Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com
O. Miscellaneous Drain or Wash Water or Other Sources ☐ Boiler drain lines ☒ Condensate drain lines ☐ Rooftop equipment ☐ Drainage sumps ☒ Roofing, gutters, and trim. ☐ Other sources		☐ Boiler drain lines shall be directly or indirectly connected to the sanitary sewer system and may not discharge to the storm drain system. ☐ Condensate drain lines may discharge to landscaped areas if the flow is small enough that runoff will not occur. Condensate drain lines may not discharge to the storm drain system. ☐ Rooftop equipment with potential to produce pollutants shall be roofed and/or have secondary containment. ☐ Any drainage sumps on-site shall feature a sediment sump to reduce the quantity of sediment in pumped water. ☐ Avoid roofing, gutters, and trim made of copper or other unprotected metals that may leach into runoff. Include controls for other sources as specified by local reviewer.	

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 **Potential Sources of Runoff Pollutants**	2 **Permanent Controls—Show on WQMP Drawings**	3 **Permanent Controls—List in WQMP Table and Narrative**	4 **Operational BMPs—Include in WQMP Table and Narrative**
☐ **P.** Plazas, sidewalks, and parking lots.			☐ Sweep plazas, sidewalks, and parking lots regularly to prevent accumulation of litter and debris. Collect debris from pressure washing to prevent entry into the storm drain system. Collect washwater containing any cleaning agent or degreaser and discharge to the sanitary sewer not to a storm drain.

Appendix 9: O&M

Operation and Maintenance Plan and Documentation of Finance, Maintenance and Recording Mechanisms

Operation and Maintenance Responsibility for BMPs

Appendix 9 of this project-specific WQMP includes Covenant and Agreements, BMP Maintenance Agreement and/or other mechanisms used to ensure the ongoing operation, maintenance, funding, transfer and implementation of the project-specific WQMP requirements.

Ownership of system will be the responsibility of the developer. Individual lots will be transferred from owner to owner.

Responsible parties for all maintenance and upkeep:

North Bayport Industrial Park II, LTD.
2245 W. 190th Street
Torrance, California 90504
Telephone: 310-326-2530

Prior to occupancy the funding source, North Bayport Industrial Park II, LTD., must enter into a Maintenance Agreement with the City of Menifee to ensure that the property owner properly maintains all project specific BMP's as discussed and outlined in this document.

Drainage Facilities: START DATES 08/01/23

O and M Activities	Schedule and Frequency
1. Inspect, repair, and replace any broken or buried drain grates.	Inspect weekly and replace immediately.
2. Inspect and remove trash and debris from catch basin inlets, Storm Drain Mains. If sediment or trash exist remove and dispose as directed hereon. Inspect and maintain Underground Storage Chambers	Inspect prior to the rainy season (September) and after the rainy season (April). Provide Performance inspections subsequent to all rain events. Inspect Underground Storage Chambers prior to and after rain events, and clean if warranted.

Irrigation System & Landscape Maintenance: START DATES 08/01/23

O and M Activities	Schedule and Frequency
1. Inspect and repair broken sprinklers	Inspect weekly and replace immediately
2. Repair broken waterlines	Inspect daily and repair immediately
3. Inspect irrigation areas for signs of erosion and/ or discharge, also vegetation areas.	Inspect weekly repair source of erosion or discharge immediately

Street Sweeping and Vacuuming: START DATES 08/01/23

O and M Activities	Schedule and Frequency
1. Inspect storage area for tracked sediment or blow sand. Visible sediment tracking should be swept immediately	Inspect daily. Sweeping operations should occur daily.
2. Adjust brooms frequently; maximize efficiency of sweeping efforts	As needed
3. Pavement Areas	Sweep weekly and after every storm event.

Common Area Control

O and M Activities	Schedule and Frequency
1. Litter cleanup & Trash removal	Daily & As needed
2. Trash storage/ Enclosure areas	Daily & As needed

Records of all maintenance and inspections for the BMP's noted above shall be updated weekly.

RECORDING REQUESTED BY:

CITY OF MENIFEE

AND WHEN RECORDED MAIL TO:

CITY OF MENIFEE
CITY CLERK
29844 HAUN ROAD
MENIFEE, CA 92586-6540

SPACE ABOVE THIS LINE FOR RECORDER'S USE

WATER QUALITY MANAGEMENT PLAN AND STORMWATER BEST MANAGEMENT PRACTICES OPERATION, TRANSFER, MAINTENANCE AND RIGHT OF ENTRY AGREEMENT

PROJECT NAME: Village at Junipero - Tentative Map No. 38340

PROPERTY OWNER NAME: North Bayport Industrial Park II, LTD.

PROPERTY ADDRESS: 2245 W. 190th Street

Torrance, Ca. 90504

APN: 333-070-018, 333-070-019 & 333-070-053

THIS AGREEMENT is made and entered into in

_____, California, this_____day of

_____, 202___, by and between

North Bayport Industrial Park II, LTD, herein after

referred to as "Owner", and the CITY OF MENIFEE, a municipal corporation, located in the County of Riverside, State of California hereinafter referred to as "CITY";

WHEREAS, the City is a Co-Permittee for discharging stormwater from its MS4 facilities pursuant to the Santa Ana Regional Water Quality Control Board Order No. R8-2010-0033, MS4 NPDES Permit No. CAS 618033. Under the terms of the permit the City is required to enforce the provisions of the permit within its jurisdiction. The requirements contained in this agreement are intended to achieve the goals of the MS4 permit;

WHEREAS, the Owner owns real property ("Property) in the City of Menifee, County of Riverside, State of California, more specifically described in Exhibit "A" and depicted in Exhibit "B", each of which exhibits is attached hereto and incorporated herein by this reference;

WHEREAS, at the time of initial approval of development project known as:

Village at Junipero within the Property described herein, the City required the project to employ Best Management Practices, hereinafter referred to as "BMPs," to minimize pollutants in urban runoff;

WHEREAS, the Owner has chosen to install and/or implement BMPs as described in the Water Quality Management Plan, on file with the City, hereinafter referred to as "WQMP," to minimize pollutants in urban runoff and to minimize other adverse impacts of urban runoff;

WHEREAS, said WQMP has been certified by the Owner and reviewed and accepted by the City;

WHEREAS, said BMPs, with installation and/or implementation on private property and draining only private property, are part of a private facility with all maintenance or replacement, therefore, the sole responsibility of the Owner in accordance with the terms of this Agreement;

WHEREAS, the Owner is aware that periodic and continuous maintenance, including, but not necessarily limited to, filter material replacement and sediment removal, is required to assure peak performance of all BMPs in the WQMP and that, furthermore, such maintenance activity will require compliance with all Local, State, or Federal laws and regulations, including those pertaining to confined space and waste disposal methods, in effect at the time such maintenance occurs;

NOW THEREFORE, it is mutually stipulated and agreed as follows:

1. Right of Access: Owner hereby provides the City of Menifee designee complete access, of any duration, to the BMPs and their immediate vicinity at any time, upon reasonable notice, or in the event of emergency, as determined by the City's Engineer, no advance notice, for the purpose of inspection, sampling, testing of the Device, and in case of emergency to direct all necessary repairs or other preventative measures at owner's expense in accordance with the procedures set forth in paragraph 3 below. City shall make every effort at all times to minimize or avoid interference with Owner's use of the Property.

2. Responsibility for Operation and Maintenance of BMPs: Owner shall use its best efforts diligently to maintain all BMPs in a manner assuring peak performance at all times. All reasonable precautions shall be exercised by Owner and Owner's representative or contractor in the removal and extraction of any material(s) from the BMPs and the ultimate disposal of the material(s) in a manner consistent with all relevant laws and regulations in effect at the time. As may be requested from time to time by the City, the Owner shall provide the City with documentation identifying the material(s) removed, the quantity, and disposal destination.

3. City Maintenance at Owner's Expense: In the event Owner, or its successors or assigns, fails to accomplish the necessary maintenance contemplated by this

Agreement, the City may cause such maintenance to be conducted on Owner's Property at Owner's expense if Owner does not commence and diligently work to perform the maintenance within five (5) days of receiving written notice from the City, in accordance with paragraph 10 below, of Owner's failure to comply with the terms of this Agreement. The City may charge the entire cost and expense of any maintenance undertaken by the City, whether performed as a response to an emergency situation or following five (5) day written notice by the City, to the Owner or Owner's successors or assigns, including administrative costs, attorney's fees and interest thereon at the maximum rate authorized by the Civil Code from the Date of the notice of expense until paid in full. The City, at its sole election, may take these costs to be a lien upon the property that may be collected at the same time and in the same manner as ordinary municipal taxes as provided in Government Code section 38773.5. Nothing in this section or this Agreement creates an obligation by the City to maintain or repair any BMP, nor does this section prohibit the City from pursuing other legal recourse against Owner.

4. Surety Bond: The City may require the owner to post security in form and for a time period satisfactory to the City to guarantee the performance of the obligations stated herein. Should the Owner fail to perform the obligations under the Agreement, the City may, in the case of a cash bond, act for the Owner using the proceeds from it, or in the case of a surety bond, require the sureties to perform the obligations of the Agreement. As an additional remedy, the City's Engineer may withdraw any previous stormwater-related approval with respect to the property on which BMPs have been installed and/or implemented until such time as Owner repays to City its reasonable costs incurred in accordance with paragraph 3 above.

5. Recording: This agreement shall be recorded in the Office of the Recorder of Riverside County, California, at the expense of the Owner and shall constitute notice to all successors and assigns of the title to said Property of the obligation herein set forth, and also a lien in such amount as will fully reimburse the City, including interest as herein above set forth, subject to foreclosure in event of default in payment.

6. Attorney's Fees: In event of legal action occasioned by any default or action of the Owner, or its successors or assigns, then the Owner and its successors or assigns agree(s) to pay all costs incurred by the City in enforcing the terms of this Agreement, including reasonable attorney's fees and costs, and that the same shall become a part of the lien against said Property.

7. Covenant: It is the intent of the parties hereto that burdens and benefits herein undertaken shall constitute covenants that run with said Property and constitute a lien there against.

8. Binding on Successors: The obligations herein undertaken shall be binding upon the heirs, successors, executors, administrators and assigns of the parties hereto. The term "Owner" shall include not only the present Owner, but also its heirs, successors, executors, administrators, and assigns. Owner shall notify any successor to title of all or part of the Property about the existence of this Agreement. Owner shall provide such notice prior to such successor obtaining an interest in all or part of the Property. Owner shall provide a copy of such notice to the City at the same time such notice is provided to the successor.

9. Time of the Essence: Time is of the essence in the performance of this Agreement.

10. Notice: Any notice to a party required or called for in this Agreement shall be served in person, or by deposit in the U.S. Mail, first class postage prepaid, to the address set forth below. Notice(s) shall be deemed effective upon receipt, or seventy-two (72) hours after deposit in the U.S. Mail, whichever is earlier. A party may change a notice address only by providing written notice thereof to the other party.

IN WITNESS THEREOF, the parties hereto have affixed their signatures as of the date first written above.

IF TO CITY:

City of Menifee

29844 Haun Road

Menifee, CA 92586

IF TO OWNER:

North Bayport Industrial Park II, LTD.

2245 W. 190th Street

Torrance, Ca. 90504

CITY:

By:_____
Armando G. Villa,
City Manager

APPROVED AS TO FORM:

_____
Jeffery T. Melching, City Attorney

ATTEST:

_____
Sarah Manwaring, City Clerk

OWNER:

By:_____
NAME

Title:_____

OWNER:

By:_____
NAME

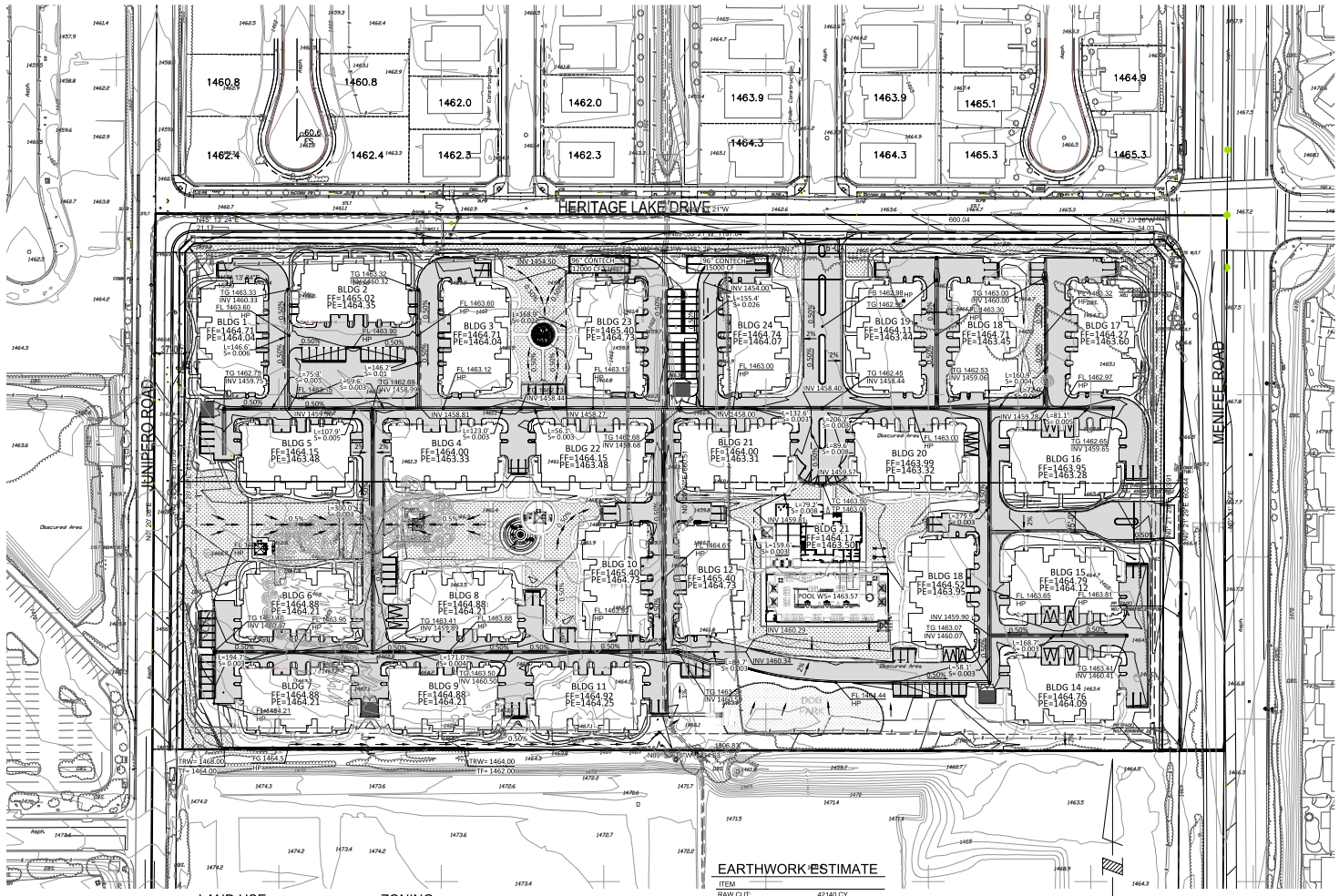
Title:_____

NOTARY ACKNOWLEDGEMENTS ON FOLLOWING PAGE

EXHIBIT A
(LegalDescription)

LOTS 964, 965, 970 & 971 OF ROMOLA FARMS NO. 10 AS SHOWN BY MAP ON FILE IN BOOK 15 AT PAGES 29 THROUGH 31OF MAPS IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY,TOGETHER WITH THAT PORTION OF THE EASTERLY20 FEET OF LOT "H" (JUNIPERO ROAD) AS SHOWN ON SAID MAP VACATED BY THE BOARD OF SUPERVISORS OF THE COUNTY OF RIVERSIDE, RECORDED FEBRUARY 6, 1962 AS INSTRUMENT NO. 11656 OF OFFICIAL RECORDS.

EXHIBIT B
(Map/Illustration)



PROJECT SITE



VICINITY MAP NTS

OWNER/APPLICANT: NORTH BAYPORT INDUSTRIAL PARK II, LTD.
2245 W. 190TH STREET
TORRANCE, CALIFORNIA 90504
PH: (310) 326-2530 FAX: (310) 326-5113
CONTACT: DON CARRUTH
e-mail:DRC@TUFFLI.COM

ENGINEER/ REPRESENTATIVE: CHRISTIANSEN & COMPANY
5225 CANYON CREST DRIVE, STE. 251
RIVERSIDE, CALIFORNIA 92507
PH: (951) 323-4713 FAX: (951) 405-8410
CONTACT: KEITH CHRISTIANSEN, P.E.
e-mail: KEITH@CCOCIVIL.COM

ARCHITECT: HUMPHREYS & PARTNERS, ARCHITECTS, L.P.
2350 SE BRISTOL STREET, SUITE 310
NEWPORT BEACH, CALIFORNIA 92660
PH: (949) 955-9400 FAX: (949) 955-1897
CONTACT: SOONG KIM
e-mail: SOONG@HUMPHREYS.COM

GEOTECHNICAL: NorCal ENGINEERING
10641 HUMBOLT STREET
LOS ALAMITOS, CALIFORNIA 90720
PH:(562) 799-9469
CONTACT: STEVE SPENSIERO

ADDRESS: XXXX JUNIPERO ROAD
MENIFEE, CALIFORNIA 92224

ASSESSOR PARCEL NUMBERS: 333-070-018, 333-070-019 & 333-070-053

ACREAGE: 17.87 ACRES (gross) 17.27 ACRES (net)

FEMA MAP: PANEL: 06025C2060G
ZONE: X

THOMAS BROS.: PG 838, GRID F4, G4 - 2014 ED.

UTILITY PURVEYORS: WATER - EMWD
SEWER - EMWD
ELECTRIC- EDISON
GAS- SOUTHERN CAL GAS
PHONE- VERIZON
CABLE- TIME WARNER

SCHOOL DISTRICT: MENIFEE UNION SCHOOL DISTRICT

TOPOGRAPHY: DAWSON SURVEYING, INC.
575 E. CARREON DRIVE
COLTON, CA. 92324
CONTACT: BOB DAWSON
e-mail: robertd@dsils.com
DATE SURVEYED: 9/27/2021

LEGAL DESCRIPTION: LOTS 964, 965, 970 & 971 OF ROMOLA FARMS NO. 10 AS SHOWN BY MAP ON FILE IN BOOK 15 AT PAGES 29 THROUGH 31OF MAPS IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY,TOGETHER WITH THAT PORTION OF THE EASTERLY20 FEET OF LOT "H" (JUNIPERO ROAD) AS SHOWN ON SAID MAP VACATED BY THE BOARD OF SUPERVISORS OF THE COUNTY OF RIVERSIDE, RECORDED FEBRUARY 6, 1962 AS INSTRUMENT NO. 11656 OF OFFICIAL RECORDS.

LAND USE

EXISTING: VACANT
PROPOSED: RESIDENTIAL-APARTMENT

ZONING

EXISTING: R-2
PROPOSED: R-2

GENERAL PLAN DESIGNATION = MDR

EARTHWORK ESTIMATE

ITEM		
RAW CUT:	42140 CY	
RAW FILL:		31925 CY
SHRINKAGE (10%):	(4210)CY	
SUBSIDENCE (0.1'):	(2766) CY	
OVEREXCAVATION (3.0')	(3293) CY	
TOTAL	31925 CY	31925 CY

0 30 60 120 180 240
SCALE: 1"= 60'

NOTES:

STREET VACATIONS FOR THE NORTH SOUTH ROAD THROUGH THE CENTER OF PROJECT SHALL BE PART OF FINAL MAPPING OF TENTATIVE TRACT NO. 38340.
PROPERTY IS NOT SUBJECT TO LIQUEFACTION OR OTHER GEOLOGIC HAZARDS.
PROPERTY IS NOT SUBJECT TO OVERFLOW, INUNDATION OR FLOOD HAZARD.

DATE PREPARED:12/16/21

Call before you Dig
Avoid cutting or damaging buried facilities
Call 811
or
1-800-227-2600

REVISIONS

⚠	SHT.	DESCRIPTION	DATE	BY	APRD

ENGINEER LOGO

Christiansen & Company
Land Development · Design · Engineering
Est. 2007
5225 Canyon Crest Drive, Ste 251
Riverside, California 92507
Ph: 951-323-4713 Fax: 951-405-8410
email:keith@ccocivil.com

ENGINEER SEAL

REGISTERED PROFESSIONAL ENGINEER
KEITH A. CHRISTIANSEN
No. 59082
Civil
STATE OF CALIFORNIA

SCALE:	1" = 60'
DESIGN:	KAC
DRAWN:	CG
CHECKED:	KAC
APPROVED:	KAC
DATE:	DEC. 12, 2021

CITY OF MENIFEE
ENGINEERING DEPARTMENT

JONATHAN G. SMITH — RCE 61253 — DATE
DIRECTOR OF PUBLIC WORKS/ CITY ENGINEER — EXP. 6/30/23

RECOMMENDED BY: — DATE

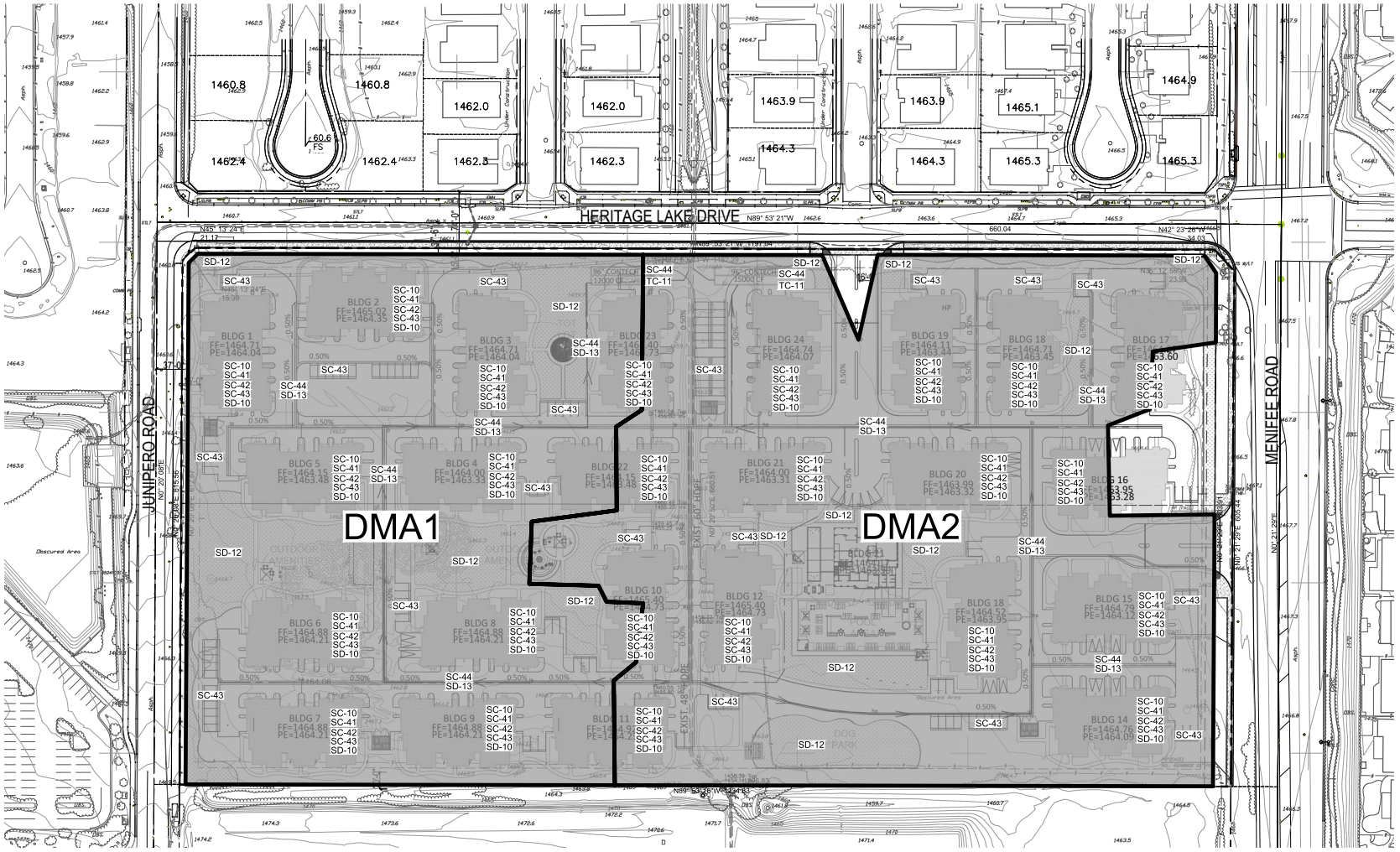
SEAL

CITY OF MENIFEE
ENGINEERING DEPARTMENT

VILLAGE AT JUNIPERO
Tentative Tract Map No. 38340
PRELIMINARY GRADING PLAN

SHEET NO.
PGP–1
1 OF 1

PROJECT NO:





VICINITY MAP NTS

WQMP LEGEND / BEST MANAGEMENT PRACTICES (BMP'S)

(REFERENCE: CALIFORNIA STORMWATER BMP HANDBOOK 2011)

SC-10	NON-STORMWATER DISCHARGES
SC-41	BUILDING & GROUNDS MAINTENANCE
SC-42	BUILDING REPAIR & CONSTRUCTION
SC-43	PARKING AREA MAINTENANCE
SC-44	DRAINAGE SYSTEM MAINTENANCE
SD-10	SITE DESIGN & LANDSCAPE PLANNING
SD-11	ROOF RUNOFF CONTROLS
SD-12	EFFICIENT IRRIGATION
SD-13	STORM DRAIN SIGNAGE
SD-32	TRASH STORAGE AREAS
TC-11	INFILTRATION BASIN

ASPHALT

LANDSCAPE

WQMP MAP				
DMA	IMPERVIOUS AREA	PERVIOUS AREA	TOTAL AREA	IMPERVIOUS %
1	6.10 AC	1.08 AC	7.18 AC	85.0
2	8.46 AC	1.49 AC	9.95 AC	85.0

0 30 60 120 180 240

SCALE: 1"= 60'

Call before you Dig
Avoid cutting underground utility lines. It's costly.
Call 811
or 1-800-227-2600

REVISIONS

SHT.	DESCRIPTION	DATE	BY	APRD

ENGINEER LOGO

Christiansen & Company
Land Development · Design · Engineering
Est. 2007

5225 Canyon Crest Drive, Ste 251
Riverside, California 92507
Ph: 951-225-4713 Fax: 951-405-8410
email:keithsiecocivil.com

ENGINEER SEAL

REGISTERED PROFESSIONAL ENGINEER
KEITH A. CHRISTIANSEN
No. 50081
Civil
Exp. 30/6/2021
STATE OF CALIFORNIA

SCALE: 1" = 60'
DESIGN: KAC
DRAWN: CG
CHECKED: KAC
APPROVED:KAC
DATE: DEC. 12, 2021

CITY OF MENIFEE
ENGINEERING DEPARTMENT

JONATHAN G. SMITH
DIRECTOR OF PUBLIC WORKS/
CITY ENGINEER
RCE 61253
EXP. 6/30/23
DATE

RECOMMENDED BY:
DATE

SEAL

CITY OF MENIFEE
ENGINEERING DEPARTMENT

VILLAGE AT JUNIPERO
Tentative Tract Map No. 38340

WQMP SITE PLAN

SHEET NO.
WQMP-1
1 OF 1

PROJECT NO: WQMP

Appendix 10: Educational Materials

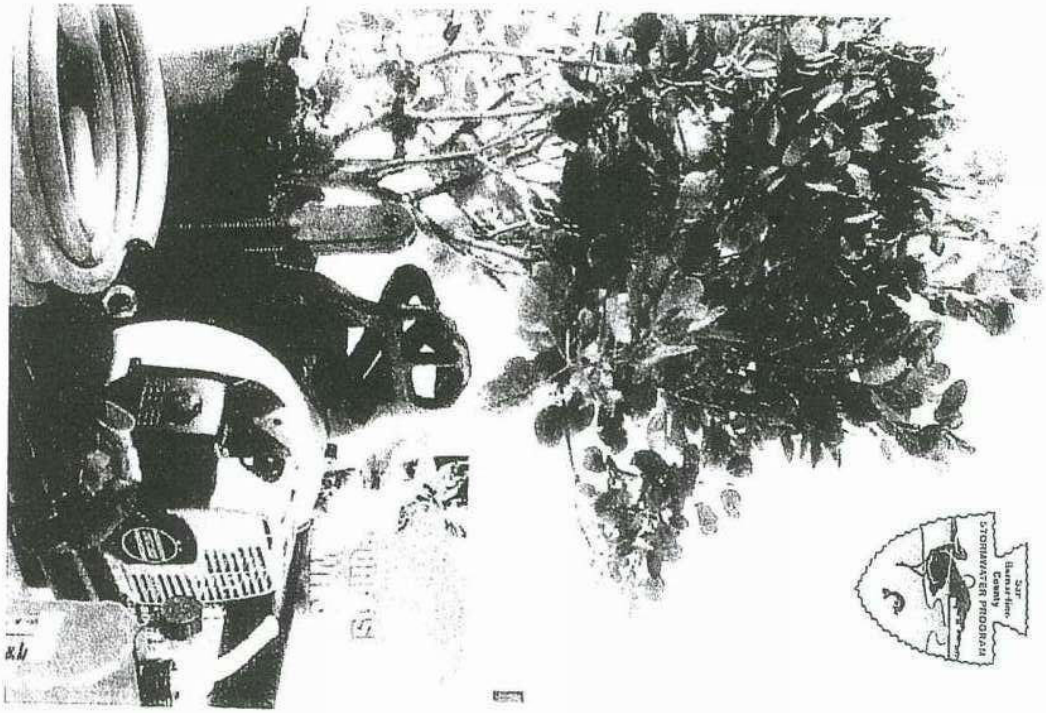
BMP Fact Sheets, Maintenance Guidelines and Other End-User BMP Information

San Bernardino County Stormwater Program
825 East Third Street · Room 127
San Bernardino, CA 94215-0835

PRESORTED
STANDARD
U.S. POSTAGE
PAID
SACRAMENTO, CA
PERMIT# 000

STORMWATER Pollution Prevention

LANDSCAPE MAINTENANCE



STORMWATER Pollution Prevention

Stormwater Management Practices for Commercial Landscape Maintenance

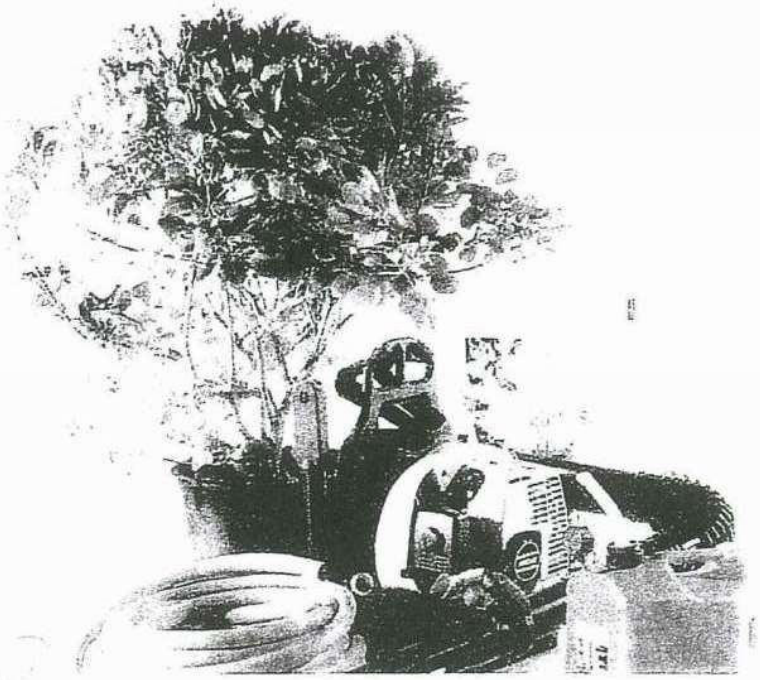
Yard waste, sediments, and toxic lawn/garden chemicals used in commercial landscape maintenance often make their way into the San Bernardino County storm drain system and do not get treated before reaching the Santa Ana River. This pollutes our drinking water and contaminates local waterways, making them unsafe for people and wildlife. Following these best management practices will prevent pollution, comply with regulations and protect public health.

Recycle Yard Waste

Recycle leaves, grass clippings and other yard waste. Do not blow, sweep, rake or hose yard waste into the street. Try grasscycling - the natural recycling of grass by leaving clippings on the lawn when mowing. Grass clippings will quickly decompose, returning valuable nutrients to the soil. Further information can be obtained at www.ciwmb.ca.gov/Organics.

Use Fertilizers, Herbicides and Pesticides Safely

Fertilizers, herbicides and pesticides are often carried into the storm drain system by sprinkler runoff. Use of natural, non-toxic alternatives to the traditional fertilizers, herbicides and pesticides is highly recommended. If you must use chemical fertilizers, herbicides, or pesticides:



- Spot apply pesticides and herbicides, rather than blanketing entire areas.
- Avoid applying near curbs and driveways, and never apply before a rain.
- Apply fertilizers as needed, when plants can best use it, and when the potential for it being carried away by runoff is low.

Recycle Hazardous Waste

Pesticides, fertilizers, herbicides and motor oil contaminate landfills and should be disposed of through a Hazardous Waste Facility, which accepts these types of materials. *For information on proper disposal call, (909) 386-8401.*

Use Water Wisely

Conserve water and prevent runoff by controlling the amount of water and direction of sprinklers. Sprinklers should be on long enough to allow water to soak into the ground but not so long as to cause runoff. Periodically inspect, fix leaks and realign sprinkler heads. Plant native vegetation to reduce the need of water, fertilizers, herbicides, and pesticides.

Prevent Erosion

Erosion washes sediments, debris and toxic runoff into the storm drain system, polluting waterways.

- Prevent erosion and sediment runoff by using ground cover, berms and vegetation down-slope to capture runoff.
- Avoid excavation or grading during wet weather.

Store Materials Safely

Keep landscaping materials and debris away from the street, gutter and storm drains. On-site stockpiles of materials must be covered with plastic sheeting to protect from rain, wind and runoff.

To report illegal dumping or for more information on stormwater pollution prevention, call:

1 (800) CLEANUP

or visit our websites:

www.co.san-bernardino.ca.us/flood/npdes

www.1800cleanup.org

Paint Tips to Prevent Pollution

Washing a paint brush or dumping rinse water in the gutter allows toxic chemicals to flow into the San Bernardino County storm drain system, and they do not get treated before reaching the Santa Ana River. This pollutes our drinking water and contaminates waterways, making them unsafe for people and wildlife. Follow these simple tips to prevent pollution and protect your health:



- Use water-based paints whenever possible. They are less toxic than oil-based paints and easier to clean up. Look for products labeled "latex" or "cleans with water."
- Don't clean brushes or rinse paint containers in the street, gutter or near a storm drain. Clean water-based paints in the sink and oil-based paints with thinner.
- Recycle leftover paint at a household hazardous waste collection facility. Call (800) 253-2687

To report illegal dumping or for more information on Stormwater pollution prevention, call:

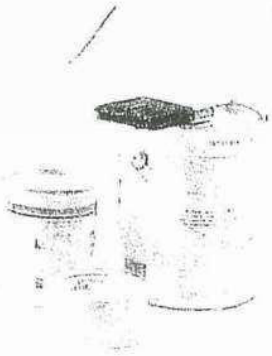
1 (800) CLEANUP

www.1800cleanup.org

English side

Consejos de Prevención Para la Contaminación de Pintura.

Lavar las brochas de pintura o arrojar agua sucia en el desagüe acaba por llegar a los drenajes del Condado de San Bernardino y terminando en el Rio de Santa Ana. Esto contamina el agua que tomamos, haciendola peligorsa para la gente y la vida salvaje. Sigue estas practicas para prevenir la contaminación y protejer la salud publica:



- Usa pinturas de agua cuando sea posible. Son menos toxicas que las pinturas de aceite y mas faciles para limpiar. Busca los productos "latex" or "cleans with water".
- Nunca laves las brochas ni los contenedores de pintura en la calle, coladeras o desagües. Las de pintura de agua limpialas en el labavo y las de pintura de aceite con thiner.
- Recicla la pintura que sobra en un lugar de colección de materiales peligrosos. Llama al (800) 253-2687

Para reportar actividades ilegales u obtener más información de la prevención de conteminación llamar al:

1 (800) CLEANUP

www.1800cleanup.org

Spanish side

Item: Paint tip card **Actual size:** 4.125" x 5.5" **Advertiser:** San Bernardino County Storm Water Program
Agency: Industrial Strength Advertising **Date:** 9/10/03

Pesticide Tips to Prevent Pollution

Water that runs off your lawn and garden can carry pesticide into the San Bernardino County storm drain system, and it does not get treated before reaching the Santa Ana River. This pollutes our drinking water and contaminates waterways, making them unsafe for people and wildlife. Follow these simple tips to prevent pollution and protect your health:



- Read the product label and follow the directions carefully, using only as directed.
- Spot apply rather than blanketing an entire area.
- Don't apply pesticide before a rain.
- Use non-toxic products for your garden and lawn whenever possible.
- Take unwanted lawn or garden chemicals to a household hazardous waste collection facility. Call (800) 253-2687

To report illegal dumping or for more information on Stormwater pollution prevention, call:

1 (800) CLEANUP

www.1800cleanup.org

English side

Consejos de Prevención Para la Contaminación de Pesticidas.

El desagüe del jardín puede llevar pesticidas que acaben por llegar a los drenajes del Condado de San Bernardino y terminando en el Rio de Santa Ana. Esto contamina el agua que tomamos, haciendola peligorsa para la gente y la vida salvaje. Sigue estas practicas para prevenir la contaminación y protejer la salud publica.



- Leer las etiquetas del producto y seguir las instrucciones cuidadosamente, usarlas tal como se indica.
- Apliqua solo parte por parte, no en areas grandes.
- No aplique los pesticidas antes de que llueva.
- Trata de usar productos no-toxicos para tu jardín cada vez que sea posible.
- Desechalos en unlugar de colección de desechos peligrosos. Llama al (800) 253-2687.

Para reportar actividades ilegales u obtener más información de la prevención de contaminación llamar al:

1 (800) CLEANUP

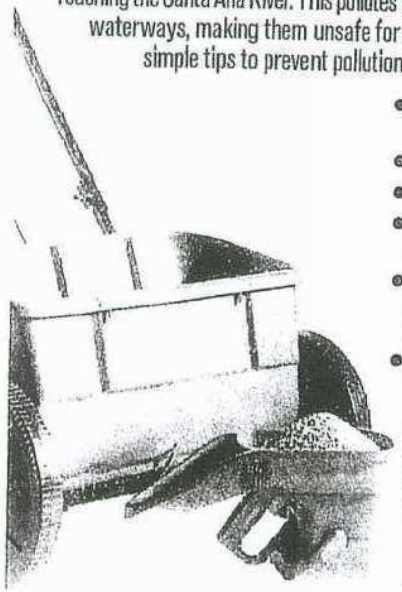
www.1800cleanup.org

Spanish side

Item: Pesticide tip card **Actual size:** 4.125" x 5.5" **Advertiser:** San Bernardino County Storm Water Program
Agency: Industrial Strength Advertising **Date:** 9/10/03

Fertilizer Tips to Prevent Pollution

Water that runs off your lawn and garden can carry excess fertilizer into the San Bernardino County storm drain system, and it does not get treated before reaching the Santa Ana River. This pollutes our drinking water and contaminates waterways, making them unsafe for people and wildlife. Follow these simple tips to prevent pollution and protect your health:



- Read the product label and follow the directions carefully, using only as directed.
- Avoid applying near driveways or gutters.
- Never apply fertilizer before a rain.
- Store fertilizers and chemicals in a covered area and in sealed, waterproof containers.
- Take unwanted lawn or garden chemicals to a household hazardous waste collection facility. Call (800) 253-2687
- Use non-toxic products for your garden and lawn whenever possible.

To report illegal dumping or for more information on Stormwater pollution prevention, call:

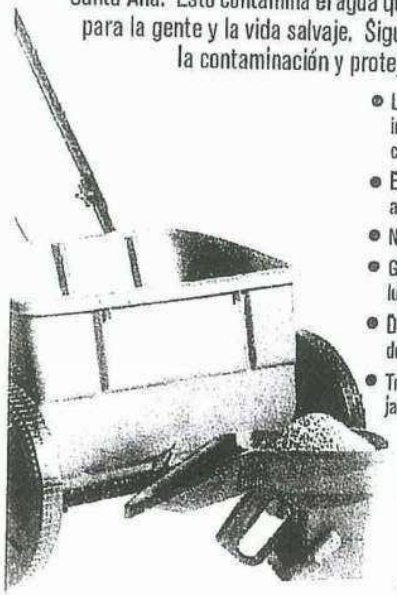
1 (800) CLEANUP

www.1800cleanup.org

English side

Consejos de Prevención Para la Contaminación de Fertilizantes.

El desagüe del jardín puede llevar pesticidas que acaben por llegar a los drenajes del Condado de San Bernardino y terminando en el Rio de Santa Ana. Esto contamina el agua que tomamos, haciendola peligorsa para la gente y la vida salvaje. Sigue estas practicas para prevenir la contaminación y protejer la salud publica:



- Leer las etiquetas del producto y seguir las instrucciones cuidadosamente, usarlas tal como se indica.
- Evita aplicarlos cerca de la cocheras o las alcantarillas.
- Nunca aplicar el fertilizante antes de llover.
- Guarda los fertilizantes y otros quimicos en un lugar cuvierto y en contenedores contra agua.
- Desechalos en unlugar de colección de desechos peligrosos. Llama al (800) 253-2687
- Trata de usar productos no-toxicos para tu jardín cada vez que sea posible.

Para reportar actividades ilegales u obtener más información de la prevención de contaminación llamar al:

1 (800) CLEANUP

www.1800cleanup.org

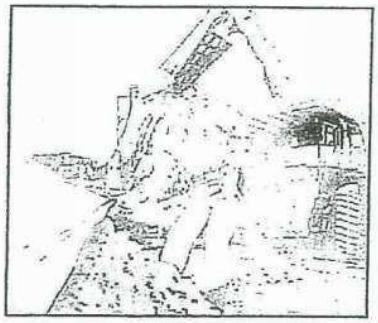
Spanish side

Item: Fertilizer tip card **Actual size:** 4.125" x 5.5" **Advertiser:** San Bernardino County Storm Water Program
Agency: Industrial Strength Advertising **Date:** 9/10/03

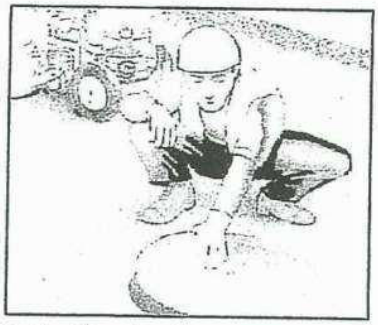
STORMWATER Pollution Prevention

ROADWORK AND PAVING

Asphalt, saw-cut slurry and excavated materials from road paving, surfacing and pavement removal often make their way into the San Bernardino County storm drain system and do not get treated before reaching the Santa Ana River. This pollutes our drinking water and contaminates waterways, making them unsafe for people and wildlife. Follow these best management practices to prevent pollution and protect public health.



Preventing Erosion
Schedule excavation and grading work during dry weather. Develop and implement erosion and sediment control plans for excavated embankments. Cover exposed To report illegal dumping or for more information with plastic sheeting, protected from rain, wind and runoff.

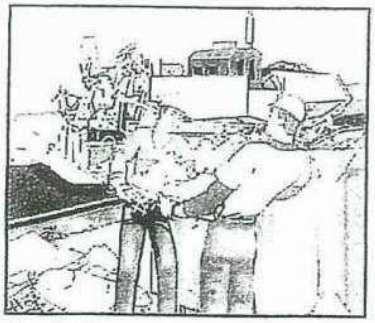


During Construction
Cover catch basins and maintenance holes when applying seal coat, slurry seal or fog seal. Use check dams, ditches or berms around excavations, and avoid over applying water for dust control. Never wash excess materials from exposed aggregate or concrete into the street, gutter or a storm drain.



Maintaining Vehicles & Equipment
Maintain and refuel vehicles and equipment at a single location on-site, away from the street, gutter and storm drains. Perform major equipment repairs and washings off-site. Inspect vehicles and equipment frequently for leaks, and prevent leaks from stored vehicles by draining gas, hydraulic oil, transmission, brake and radiator fluids.

Asphalt & Concrete Removal
To report illegal dumping or for more information and recycle broken up pavement at a crushing company. For recycling information, call (909) 386-8401.





Cleaning & Preventing Spills
Be ready for spills by preparing and using spill containment and cleanup kits that include safety equipment and dry cleanup materials such as kitty litter or sawdust. Sweep up dry spills, instead of hosing. Prevent spills from paver machines by using drip pans, or by placing absorbent materials like cloths or rags under the machines when not in use. To report serious spills, call 911.

To report illegal dumping or for more information on stormwater pollution prevention, call:

1 (800) CLEANUP

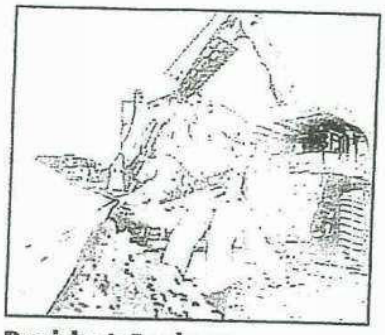
www.1800cleanup.org

San Bernardino County STORMWATER PROGRAM

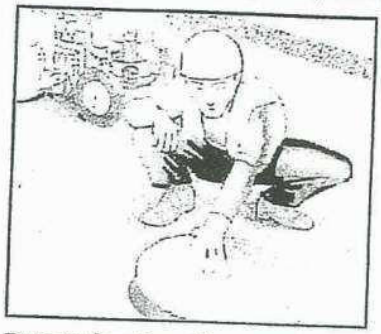
Prevención de Contaminación del Desagüe

TRABAJO DE CARRETERAS & PAVIMENTO

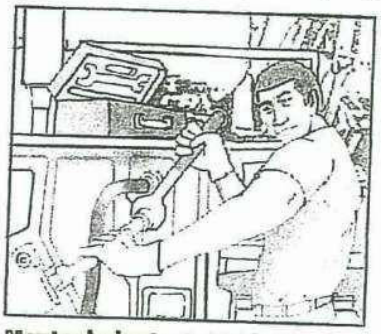
Asfalto, mezcla y materiales de excavaciones del pavimento acaban por llegar a los drenajes del Condado de San Bernardino y terminando en el Rio de Santa Ana. Esto contamina el agua que tomamos, haciendola peligorsa para la gente y la vida salvaje. Sigue estas practicas para prevenir la contaminación y protejer la salud publica.



Previniendo Erosiones
Planea las excavaciones trabajo de jardineria durante el clima seco. Desarrolla e implementa planes de embancamientos de control de sedimento y excavaciones. Cubre montones de tierra, grava y otros materiales con un plastico para protejerlos de la llvia, aire y desagüe.



Durante Construcción
Cubre los lavados y da mantenimiento a los hoyos al aplicar selladura o mezcla. Revisa las areas de excavaciones, y evita pasarte de agua para preveenir polvadura. Nunca laves los materiales llenos de concreto en la calle, drenajes o en el desagüe.



Mantenimiento de Vehiculos & Herramientas
Has el mantenimiento y carga de vehiculos en el mismo lugar, lejos de la calle, las alcantarillas y los drenajes. Inspecciona los vehiculos y el equipo de cualquier goteadura y evita goteaduras de autos que no se usan vasiandoles la gasolina, aceite de transmision, frenos y liquidos del radiador.

Removiendo Asfalto & Concreto
Bloquea alrededor de los drenajes cuando estes usando las maquinas de sierra, tambien recicla todo el pavimento roto en la compañia demolidora. Para más información llama al (909) 386-8401.



Limpiando & Previniendo Derrames
Mantente siempre preparado para cualquier derrame, usa siempre las herramientas de seguridad al igual que materiales como, tierra para desechos de gato o aserrin Barre los derrames en ves de lavarlos con la manguera. Previene los derrames de las maquinas usando enbudos o colocanto garras para absorver cualquier liquido. Para reportar derrames llama al 911.



Para reportar actividadas ilegales u obtener más información de la prevención de contaminación llamar al:

1 (800) CLEANUP

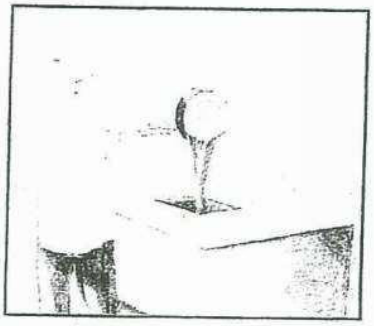
www.1800cleanup.org

San Bernardino County STORMWATER PROGRAM

STORMWATER Pollution Prevention

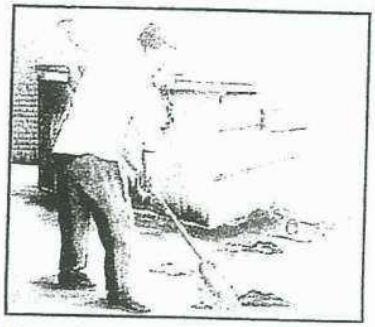
FOOD AND RESTAURANT

Food waste, grease, cleaning fluids, mop water and trash from restaurant operations often make their way into the San Bernardino County storm drain system, and do not get treated before reaching the Santa Ana River. This pollutes our drinking water and contaminates waterways, making them unsafe for people and wildlife. Follow these best management practices to prevent pollution and protect public health.



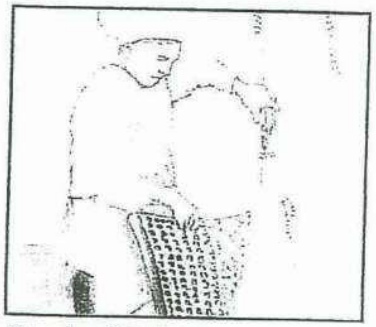
Recycle Oil & Grease

Oil and grease wastes can be recycled. Look in the yellow pages for rendering companies, or call (909) 386-8401 for disposal information. Don't pour oil or grease into sinks, floor drains or onto a parking lot or street. Keep grease bins covered and contained. Keep your grease interceptor maintained to prevent sewer overflows or backups and keep records of grease waste hauling.



Dumpster Areas

Keep dumpster lids closed and the areas around them clean. Do not fill with liquid waste or hose them out. Call your trash hauler to replace any dumpsters that are damaged or leak.



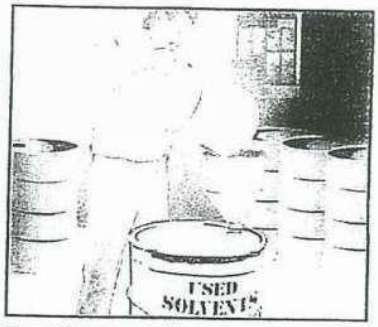
Cleaning & Maintenance

Clean equipment, floor mats, filters and garbage cans in a mop sink, wash rack or floor drain connected to the sewer through a grease trap. Don't wash them or pour wash water in a parking lot, alley, sidewalk or street. Sweep outside areas and put the debris in the garbage, instead of sweeping or hosing it into the parking lot or street.



Managing Spills

Clean food spills in loading and trash areas by using absorbent materials and sweeping then mopping, and discharge mop water into the sewer through a grease interceptor. Have spill containment and cleanup kits available. To report serious toxic spills, call 911.



Handling Toxic Chemicals

Dispose of all unwanted toxics materials like cleaners, solvents and detergents through a hazardous waste hauler. These items are not trash. For information on hazardous waste pickup, call (909) 386-8401. Use non-toxic cleaning products whenever possible.



To report illegal dumping or for more information on stormwater pollution prevention, call:

1 (800) CLEANUP

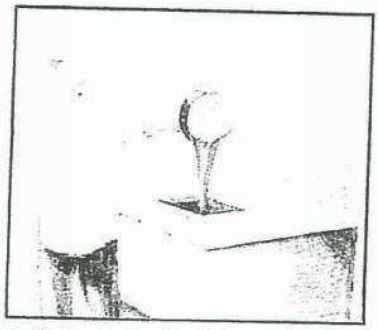
www.1800cleanup.org

San Bernardino County STORMWATER PROGRAM

Prevención de Contaminación del Desagüe

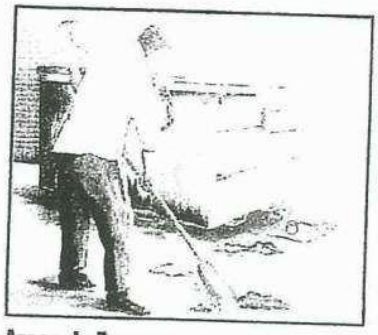
RESTAURANTES

Desechos de comida, grasa, liquidos de limpieza, agua del trapiador y basura de un restaurant acaban por llegar a los drenajes del Condado de San Bernardino y terminando en el rio de Santa Ana. Para prevenir esta contaminación y protejer la salud publica, siga estas practicas.



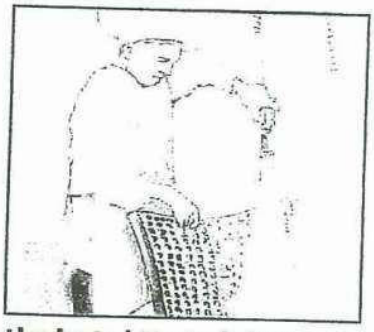
Reciclando Aceite & Grasa

El aceite y la grasa se pueden reciclar. Busca en las paginas amarillas compañias de reciclaje o llama al (909) 386-8401 para información. No los tires en los lavaderos, las coladeras, el estacionamiento o en la calle. Manten los recipientes de grasa cuviertos y guardados.



Areas de Basura

Manten el bote de basura cerrada y el área del basurero limpia. No lo llenes con desechos líquidos ni utilices la manguera para lavarlo. Llama al transportador de basura para reemplasar los botes de basura que esten dañados.



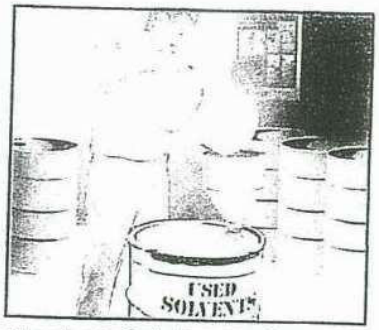
Limpiando & Mantenimiento

Limpia los tapetes de piso, los filtros y los botes de basura en el contenedor para trapeadores, lavavo, o en la coladera apropiado que llegue al drenaje. No los laves en el estacionamiento, los callejones, en la banqueta o en la calle. Barre el area de afuera y pon todo en la basura, en ves de dejarlo en la banqueta o en la calle.



Controlando Derrames

Usa métodos secos para limpiar los derrames, barriendo y usando tierra para desechos de gato, no uses la manguera para limpiar los derrames. Manten un kit de limpieza de derramámientos en tu negocio. Para reportar derrames llama al 911.



Manejando Quimicos Toxicos

Deposita los desechos toxicos como limpiadores, solventes, detergentes a un bote para toxicos. Estos no son basura. Para mas información sobre desechos peligrosos, llama al (909) 386-8401. Usa productos de limpieza que no sean toxicos.



Para reportar actividadas ilegales u obtener más información de la prevención de contaminación llamar al :

1 (800) CLEANUP

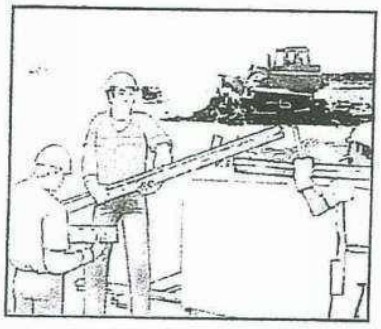
www.1800cleanup.org

San Bernardino County STORMWATER PROGRAM

STORMWATER Pollution Prevention

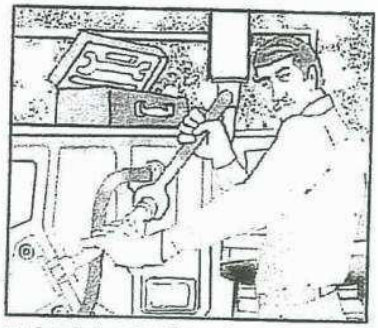
EXCAVATION AND GRADING

Sediment, cement wash, asphalt and vehicle fluids from soil excavation and grading often make their way into the San Bernardino County storm drain system and do not get treated before reaching the Santa Ana River. This pollutes our drinking water and contaminates waterways, making them unsafe for people and wildlife. Follow these best management practices to prevent pollution and protect public health.



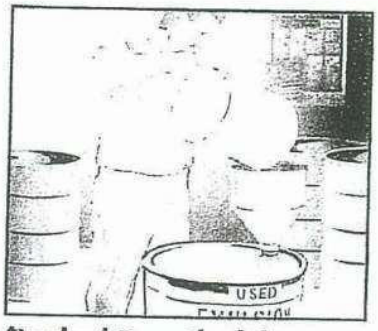
Recycling Waste

Recycle broken asphalt, concrete, wood, and cleared vegetation whenever possible. Non-recyclable materials should be taken to a landfill or disposed of as hazardous waste. For recycling and disposal information, call (909) 386-8401.



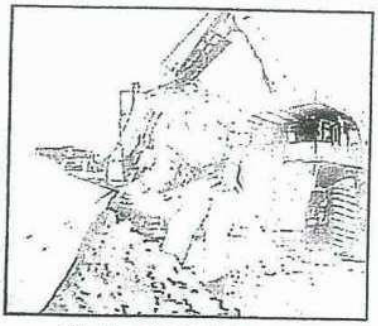
Maintaining Vehicles & Equipment

Maintain and refuel vehicles and equipment at a single location on-site, away from the street, gutters and storm drains. Perform major equipment repairs and washings off-site. Inspect vehicles and equipment frequently for leaks. Use gravel approaches where truck traffic is heavy to reduce soil compaction and limit the tracking of sediment into the street.



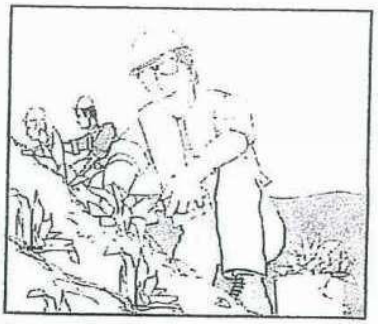
Cleaning & Preventing Spills

Use a drip pan and funnel when draining or pouring fluids. Sweep up dry spills, instead of hosing. Be ready To report illegal dumping or for more information and cleanup kits that include safety equipment and dry cleanup materials such as kitty litter or sawdust. Prevent leaks from stored vehicles by draining gas, hydraulic oil, transmission, brake and radiator fluids. To report serious spills, call 911.



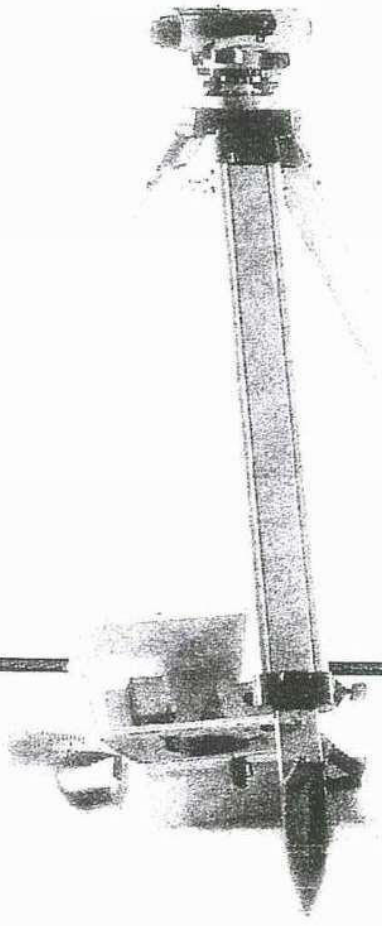
Storing Materials

Keep construction materials and debris away from the street, gutter and storm drains. Cover exposed stockpiles of soil, sand or gravel and excavated material with plastic sheeting, protected from rain, wind and runoff.



Preventing Erosion

Avoid excavation or grading during wet weather. To report illegal dumping or for more information construction is not immediately planned, and permanent vegetation once excavation and grading To report illegal dumping or for more information runoff. Channels can be lined with grass or roughened pavement to reduce runoff velocity.



To report illegal dumping or for more information on stormwater pollution prevention, call:

1 (800) CLEANUP

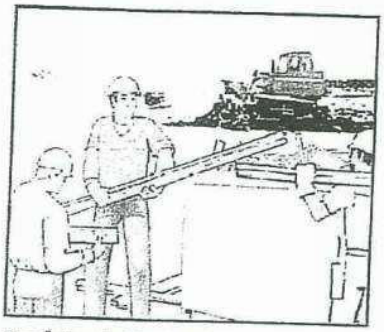
www.1800cleanup.org

San Bernardino County STORMWATER PROGRAM

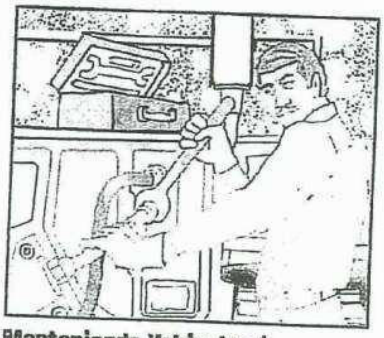
Prevención de Contaminación del Desagüe

EXCAVACIONES

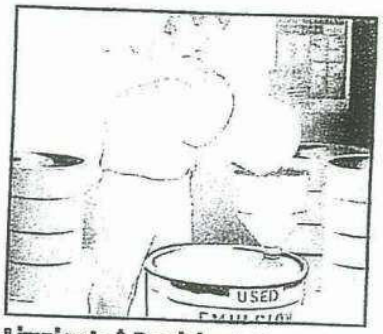
Sedimento, cemento, asfalto y liquidos de auto, tierra y residuos peligrosos de lugares de construcción acaban por llegar a los drenajes del Condado de San Bernardino y terminando en el Rio de Santa Ana. Esto contamina el agua que tomamos, haciendola peligorsa para la gente y la vida salvaje. Sigue estas practicas para prevenir la contaminación y protejer la salud publica.



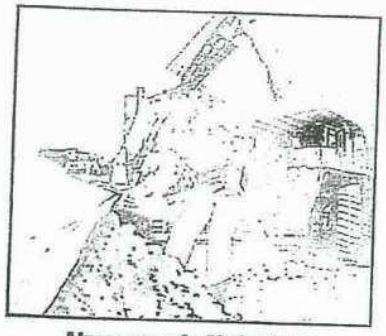
Reciclando Desechos
Recicla el aspfalto, concreto, madera y la vegetacion cuando sea posible. Materiales no reciclados se deverian llevar a lugares de desechos peligrosos. Para màs informacion llama al (909) 386-8401.



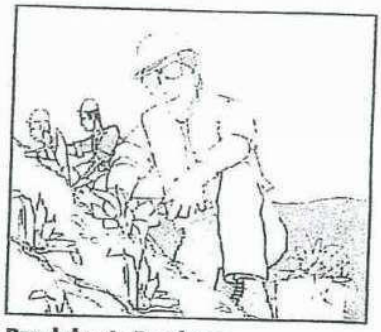
Manteniendo Vehiculos & Herramientas
Has el mantenimiento y carga de vehiculos en el mismo lugar, lejos de la calle, las alcantarillas y los drenajes. Inspecciona los vehiculos y el equipo de cualquier goteadura. Usa grava donde mayormente se consentra el trafico de camiones para y reducir el sedimento en las calles.



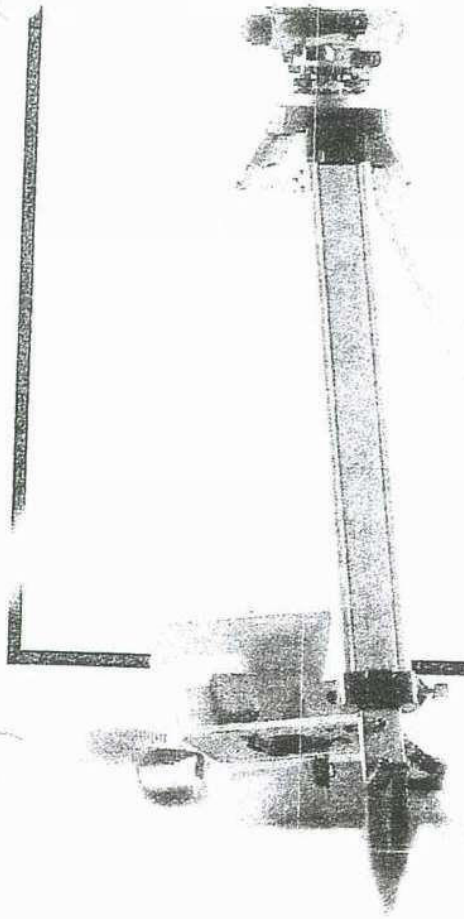
Limpiando & Previniendo Derrames
Usa siempre un enbudo al vaciar liquidos. Barre los derrames en ves de lavarlos con la manguera. Mantente siempre preparado para cualquier derrame, usa siempre las herramientas de seguridad al igual que materiales como, tierra para desechos de gato o aserrin. Preveen goteaduras de autos que no se usan vasiandoles la gasolina, aceite de transmision, frenos y liquidos del radiador. Para reportar derrames llama al 911.



Almacenando Materiales
Manten materiales de construccion y residuos lejos de las calles, coladeras y desagües. Manten tapados los bultos de arena, grava y errramientas para excavar cuviertos con algun plastico para protejerlos de la lluvia, el aire y el desagüe.



Previniendo Erosiones
Evita las excavaciones durante lluvia. Planta vegetacion temporal en colinas donde aun no hay planes de construcción y planta vegetacion permanente al terminar las excavaciones. Construye algunos canales para el desagüe. Estos pueden ser creados con pasto y cemento para reducir la velocidad del desagüe.



Para reportar actividadas ilegales u obtener más información de la prevención de contaminación llamar al:

1 (800) CLEANUP

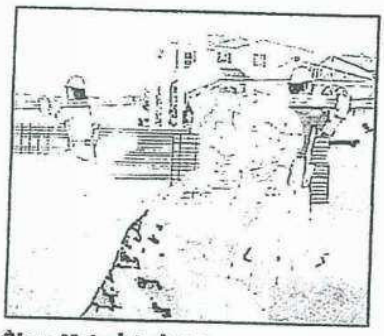
www.1800cleanup.org

San Bernardino County STORMWATER PROGRAM

STORMWATER Pollution Prevention

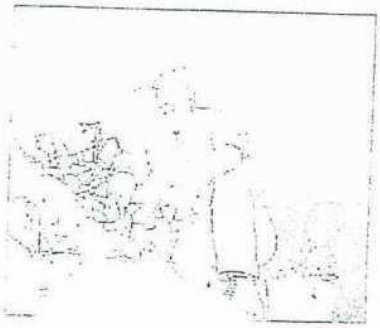
CONSTRUCTION

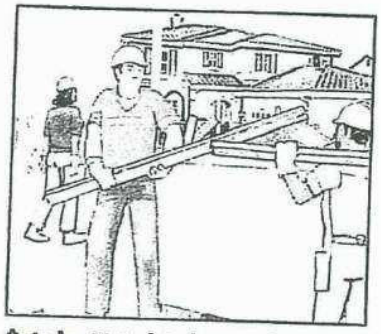
Cement wash, sediment, vehicle fluids, dust and hazardous debris from construction sites often make their way into the San Bernardino County storm drain system and do not get treated before reaching the Santa Ana River. This pollutes our drinking water and contaminates waterways, making them unsafe for people and wildlife. Follow these best management practices to prevent pollution and protect public health.



Store Materials Safely

Keep construction materials and debris away from the street, gutter and storm drains. Cover exposed stockpiles of soil, sand or gravel and excavated material with plastic sheeting, protected from rain, wind and runoff.



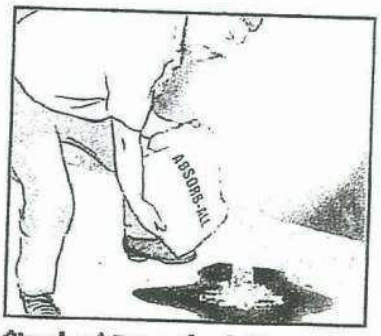


Ordering Materials & Recycling Waste

Reduce waste by ordering only the amounts of materials needed for the job. Use recycled or recyclable materials whenever possible. You can recycle broken asphalt, concrete, wood, and cleared vegetation. Non-recyclable materials should be taken to a landfill or disposed of as hazardous waste. For recycling and disposal information, call (909) 386-8401.

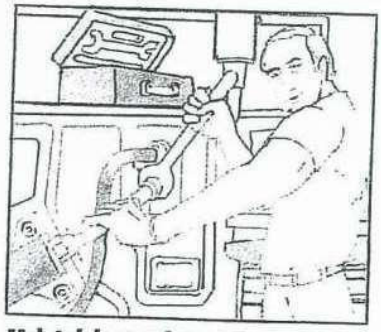
Preventing Erosion

To report illegal dumping or for more information Plant temporary vegetation or add hydromulch on To report illegal dumping or for more information and permanent vegetation once excavation and grading are complete. Construct diversion dikes to channel runoff to a detention basin and around the construction site. Channels can be lined with grass or roughened pavement to reduce runoff velocity.



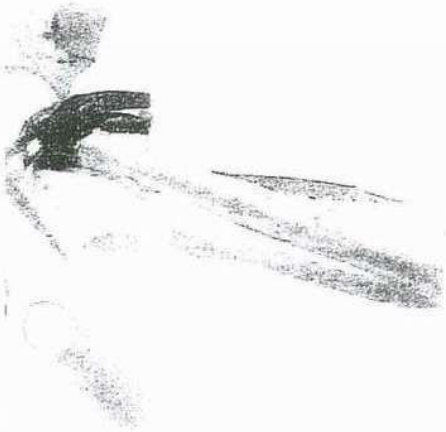
Cleaning & Preventing Spills

Use a drip pan and funnel when draining or pouring fluids. Sweep up dry spills, instead of hosing. Be ready for spills by preparing and using spill containment and cleanup kits that include safety equipment and dry cleanup materials such as kitty litter or sawdust. To report serious spills, call 911.



Maintaining Vehicles & Equipment

Maintain and refuel vehicles and equipment at a single location on-site, away from the street, gutter and storm drains. Perform major equipment repairs and washings off-site. Inspect vehicles and equipment frequently for leaks, and prevent leaks from stored vehicles by draining gas, hydraulic oil, transmission, brake and radiator fluids.



To report illegal dumping or for more information on stormwater pollution prevention, call:

1 (800) CLEANUP

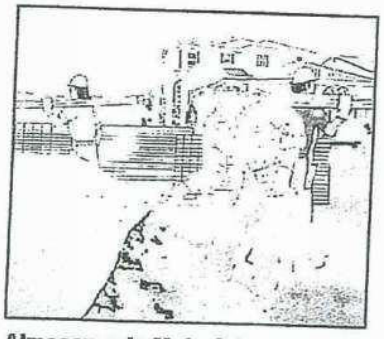
www.1800cleanup.org

San Bernardino County STORMWATER PROGRAM

Prevención de Contaminación del Desagüe

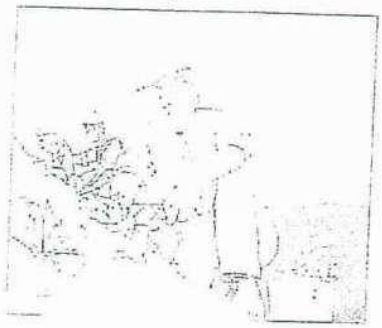
CONSTRUCCIÓN

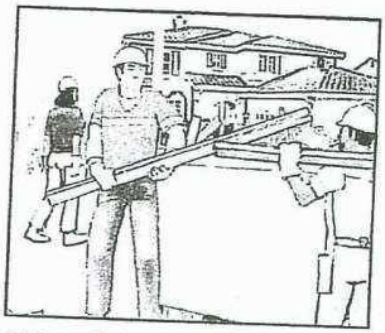
Cemento, sedimentos, liquidos de auto, polvos y residuos peligrosos acaban por llegar a los drenajes del Condado de San Bernardino y terminando en el Rio de Santa Ana. Esto contamina el agua que tomamos, haciendola peligorsa para la gente y la vida salvaje. Sigue estas practicas para prevenir la contaminación y protejer la salud publica.



Almacenando Materiales Cuidadosamente

Manten materiales de construcción y residuos lejos de las calles, coladeras y desagües. Manten tapados los bultos de arena, grava y herramientas para excavar cuviertos con algun plastico para protejerlos de la lluvia, el aire y el desagüe.



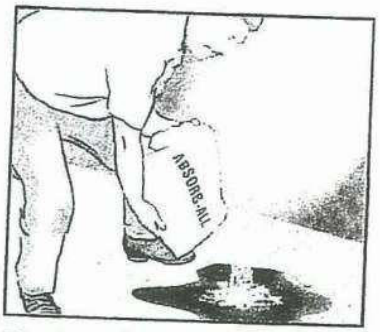


Ordenando Materiales & Reciclando Desechos

Reduce la cantidad al ordenar el material, solo ordena lo necesario. Usa materiales que se puedan reciclar cuando sea posible. Se puede reciclar el aspfalto, concreto, madera y la vegetacion. Materiales no reciclados se deven llevar a lugares de desechos peligrosos. Para mas información llama al (909) 386-8401.

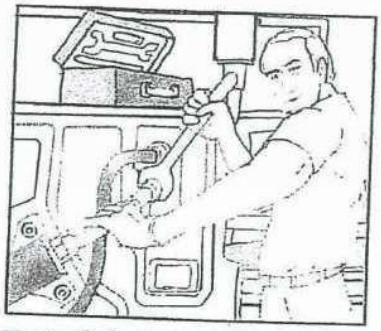
Previniendo Erosiones

Evita las excavaciones durante lluvia. Planta vegetacion temporal en colinas donde aun no hay planes de construccion y planta vegetacion permanente al terminar las excavaciones. Construye algunos canales para el desagüe. Estos pueden ser creados con pasto y cemento para reducir la velocidad del desagüe.



Limpiando & Previniendo Derrames

Usa siempre un enbudo al vaciar liquidos. Barre los derrames en ves de lavarlos con la manguera. Mantente siempre preparado para cualquier derrame, usa siempre las herramientas de seguridad al igual que materiales como, *tierra para desechos de gato o aserrin.* Para reportar derrames llama al 911.



Mantenimiento de Vehiculos & Herramientas

Has el mantenimiento y carga de vehiculos en el mismo lugar, lejos de la calle, las alcantarillas y los drenajes. Inspecciona los vehiculos y el equipo de cualquier goteadura y preveen goteaduras de autos que no se usan vasiandoles la gasolina, aceite de transmision, frenos y liquidos del radiador.

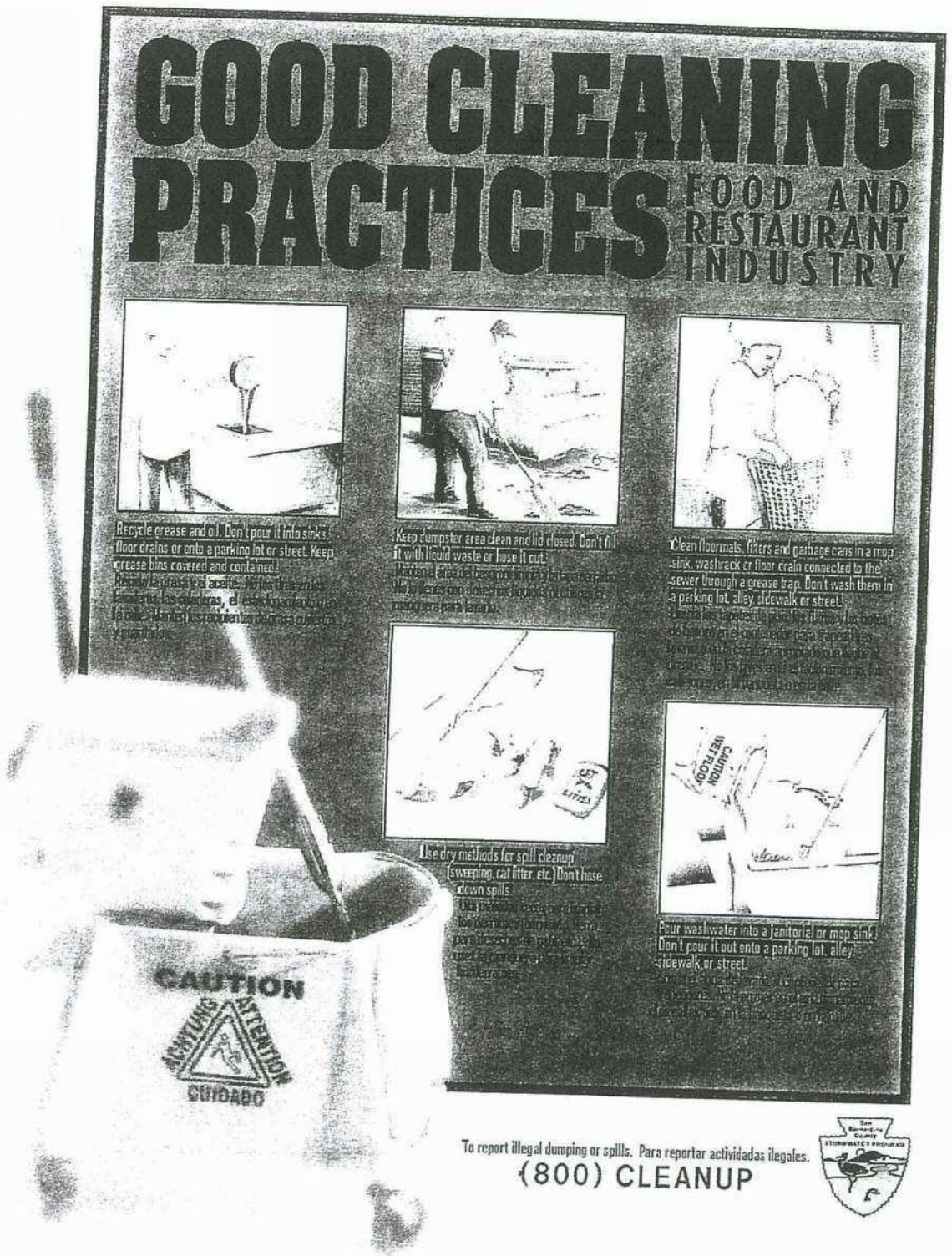


Para reportar actividadas ilegales u obtener más información de la prevención de contaminación llamar al:

1 (800) CLEANUP

www.1800cleanup.org

San Bernardino County STORMWATER PROGRAM



Ad title: Food & restaurant poster **Actual size:** 18" x 24"
Advertiser: San Bernardino County Storm Water Program **Agency:** Industrial Strength Advertising **Date:** 8/20/03

Drainage System Maintenance SC-44



Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize

Description

As a consequence of its function, the stormwater conveyance system collects and transports urban runoff and stormwater that may contain certain pollutants. The protocols in this fact sheet are intended to reduce pollutants reaching receiving waters through proper conveyance system operation and maintenance.

Targeted Constituents

Sediment	✓
Nutrients	
Trash	✓
Metals	
Bacteria	✓
Oil and Grease	
Organics	

Approach

Pollution Prevention

Maintain catch basins, stormwater inlets, and other stormwater conveyance structures on a regular basis to remove pollutants, reduce high pollutant concentrations during the first flush of storms, prevent clogging of the downstream conveyance system, restore catch basins' sediment trapping capacity, and ensure the system functions properly hydraulically to avoid flooding.

Suggested Protocols

Catch Basins/Inlet Structures

- Staff should regularly inspect facilities to ensure compliance with the following:
  - Immediate repair of any deterioration threatening structural integrity.
  - Cleaning before the sump is 40% full. Catch basins should be cleaned as frequently as needed to meet this standard.
  - Stenciling of catch basins and inlets (see SC34 Waste Handling and Disposal).

CASQA California Stormwater Quality Association

- Are there any odors associated with the drainage system?
- Record locations of apparent illegal discharges/illicit connections?
- Track flows back to potential dischargers and conduct aboveground inspections. This can be done through visual inspection of upgradient manholes or alternate techniques including zinc chloride smoke testing, fluorometric dye testing, physical inspection testing, or television camera inspection.
- Eliminate the discharge once the origin of flow is established.

- Stencil or demarcate storm drains, where applicable, to prevent illegal disposal of pollutants. Storm drain inlets should have messages such as "Dump No Waste Drains to Stream" stenciled next to them to warn against ignorant or intentional dumping of pollutants into the storm drainage system.
- Refer to fact sheet SC-10 Non-Stormwater Discharges.

Illegal Dumping

- Inspect and clean up hot spots and other storm drainage areas regularly where illegal dumping and disposal occurs.
- Establish a system for tracking incidents. The system should be designed to identify the following:
  - Illegal dumping hot spots
  - Types and quantities (in some cases) of wastes
  - Patterns in time of occurrence (time of day/night, month, or year)
  - Mode of dumping (abandoned containers, "midnight dumping" from moving vehicles, direct dumping of materials, accidents/spills)
  - Responsible parties
- Post "No Dumping" signs in problem areas with a phone number for reporting dumping and disposal. Signs should also indicate fines and penalties for illegal dumping.
- Refer to fact sheet SC-10 Non-Stormwater Discharges.

Training

- Train crews in proper maintenance activities, including record keeping and disposal.
- Allow only properly trained individuals to handle hazardous materials/wastes.
- Have staff involved in detection and removal of illicit connections trained in the following:
  - OSHA-required Health and Safety Training (29 CFR 1910.120) plus annual refresher training (as needed).

- OSHA Confined Space Entry training (Cal-OSHA Confined Space, Title 8 and Federal OSHA 29 CFR 1910.146).
- Procedural training (field screening, sampling, smoke/dye testing, TV inspection).

Spill Response and Prevention

- Investigate all reports of spills, leaks, and/or illegal dumping promptly.
- Clean up all spills and leaks using "dry" methods (with absorbent materials and/or rags) or dig up, remove, and properly dispose of contaminated soil.
- Refer to fact sheet SC-11 Spill Prevention, Control, and Cleanup.

Other Considerations (Limitations and Regulations)

- Clean-up activities may create a slight disturbance for local aquatic species. Access to items and material on private property may be limited. Trade-offs may exist between channel hydraulics and water quality/riparian habitat. If storm channels or basins are recognized as wetlands, many activities, including maintenance, may be subject to regulation and permitting.
- Storm drain flushing is most effective in small diameter pipes (36-inch diameter pipe or less, depending on water supply and sediment collection capacity). Other considerations associated with storm drain flushing may include the availability of a water source, finding a downstream area to collect sediments, liquid/sediment disposal, and prohibition against disposal of flushed effluent to sanitary sewer in some areas.
- Regulations may include adoption of substantial penalties for illegal dumping and disposal.
- Local municipal codes may include sections prohibiting discharge of soil, debris, refuse, hazardous wastes, and other pollutants into the storm drain system.

Requirements

Costs

- An aggressive catch basin cleaning program could require a significant capital and O&M budget.
- The elimination of illegal dumping is dependent on the availability, convenience, and cost of alternative means of disposal. The primary cost is for staff time. Cost depends on how aggressively a program is implemented. Other cost considerations for an illegal dumping program include:
  - Purchase and installation of signs.
  - Rental of vehicle(s) to haul illegally-disposed items and material to landfills.
  - Rental of heavy equipment to remove larger items (e.g., car bodies) from channels.
  - Purchase of landfill space to dispose of illegally-dumped items and material.

- Methods used for illicit connection detection (smoke testing, dye testing, visual inspection, and flow monitoring) can be costly and time-consuming. Site-specific factors, such as the level of impervious area, the density and ages of buildings, and type of land use will determine the level of investigation necessary.

Maintenance

- Two-person teams may be required to clean catch basins with vactor trucks.
- Teams of at least two people plus administrative personnel are required to identify illicit discharges, depending on the complexity of the storm sewer system.
- Arrangements must be made for proper disposal of collected wastes.
- Technical staff are required to detect and investigate illegal dumping violations.

Supplemental Information

Further Detail of the BMP

Storm Drain Flushing

Flushing is a common maintenance activity used to improve pipe hydraulics and to remove pollutants in storm drainage systems. Flushing may be designed to hydraulically convey accumulated material to strategic locations, such as an open channel, another point where flushing will be initiated, or the sanitary sewer and the treatment facilities, thus preventing resuspension and overflow of a portion of the solids during storm events. Flushing prevents "plug flow" discharges of concentrated pollutant loadings and sediments. Deposits can hinder the designed conveyance capacity of the storm drain system and potentially cause backwater conditions in severe cases of clogging.

Storm drain flushing usually takes place along segments of pipe with grades that are too flat to maintain adequate velocity to keep particles in suspension. An upstream manhole is selected to place an inflatable device that temporarily plugs the pipe. Further upstream, water is pumped into the line to create a flushing wave. When the upstream reach of pipe is sufficiently full to cause a flushing wave, the inflated device is rapidly deflated with the assistance of a vacuum pump, thereby releasing the backed up water and resulting in the cleaning of the storm drain segment.

To further reduce impacts of stormwater pollution, a second inflatable device placed well downstream may be used to recollect the water after the force of the flushing wave has dissipated. A pump may then be used to transfer the water and accumulated material to the sanitary sewer for treatment. In some cases, an interceptor structure may be more practical or required to recollect the flushed waters.

It has been found that cleansing efficiency of periodic flush waves is dependent upon flush volume, flush discharge rate, sewer slope, sewer length, sewer flow rate, sewer diameter, and population density. As a rule of thumb, the length of line to be flushed should not exceed 700 feet. At this maximum recommended length, the percent removal efficiency ranges between 65-75% for organics and 55-65% for dry weather grit/inorganic material. The percent removal efficiency drops rapidly beyond that. Water is commonly supplied by a water truck, but fire hydrants can also supply water. To make the best use of water, it is recommended that reclaimed water be used or that fire hydrant line flushing coincide with storm sewer flushing.

References and Resources

California's Nonpoint Source Program Plan http://www.swrcb.ca.gov/nps/index.html

Clark County Storm Water Pollution Control Manual
http://www.co.clark.wa.us/pubworks/bmpman.pdf

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Santa Clara Valley Urban Runoff Pollution Prevention Program http://www.scvurppp.org

The Storm Water Managers Resource Center http://www.stormwatercenter.net

United States Environmental Protection Agency (USEPA). 2002. Pollution Prevention/Good Housekeeping for Municipal Operations Storm Drain System Cleaning. On line:
http://www.epa.gov/npdes/menuofbmps/poll_16.htm

Contech® CMP Detention Inspection and Maintenance Guide

Underground stormwater detention and infiltration systems must be inspected and maintained at regular intervals for purposes of performance and longevity.

Inspection

Inspection is the key to effective maintenance of CMP detention systems and is easily performed. Contech recommends ongoing, quarterly inspections. The rate at which the system collects pollutants will depend more on site specific activities rather than the size or configuration of the system.

Inspections should be performed more often in equipment washdown areas, in climates where sanding and/or salting operations take place, and in other various instances in which one would expect higher accumulations of sediment or abrasive/corrosive conditions. A record of each inspection is to be maintained for the life of the system.

Maintenance

CMP detention systems should be cleaned when an inspection reveals accumulated sediment or trash is clogging the discharge orifice.

Accumulated sediment and trash can typically be evacuated through the manhole over the outlet orifice. If maintenance is not performed as recommended, sediment and trash may accumulate in front of the outlet orifice. Manhole covers should be securely seated following cleaning activities. Contech suggests that all systems be designed with an access/inspection manhole situated at or near the inlet and the outlet orifice. Should it be necessary to get inside the system to perform maintenance activities, all appropriate precautions regarding confined space entry and OSHA regulations should be followed.

Systems are to be rinsed, including above the spring line, annually soon after the spring thaw, and after any additional use of salting agents, as part of the maintenance program for all systems where salting agents may accumulate inside the pipe.

Maintaining an underground detention or infiltration system is easiest when there is no flow entering the system. For this reason, it is a good idea to schedule the cleanout during dry weather.

The foregoing inspection and maintenance efforts help ensure underground pipe systems used for stormwater storage continue to function as intended by identifying recommended regular inspection and maintenance practices. Inspection and maintenance related to the structural integrity of the pipe or the soundness of pipe joint connections is beyond the scope of this guide.



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November 9, 2022

Mr. Bill Cunningham
North Bayport Industrial Park II, Ltd
2245 W. 190th Street
Torrance, CA 90504

SUBJECT: VILLAGE AT JUNIPERO VEHICLE MILES TRAVELED (VMT) SCREENING EVALUATION

Dear Mr. Bill Cunningham:

The following Vehicle Miles Traveled (VMT) Screening Evaluation has been prepared for the proposed Village at Junipero (**Project**), which is located westerly of Menifee Road, north of McCall Boulevard, east of Junipero Road, and south of Rouse Road in the City of Menifee.

PROJECT OVERVIEW

It is our understanding that the project is to consist of a multi-family apartment project including 240 units in 24 two-story buildings with a leasing office and clubhouse building on a 19.25-acre site (See Attachment A).

BACKGROUND

Changes to California Environmental Quality Act (CEQA) Guidelines were adopted in December 2018, which requires all lead agencies to adopt VMT as a replacement for automobile delay-based level of service (LOS) as the new measure for identifying transportation impacts for land use projects. This statewide mandate went into effect July 1, 2020. To aid in this transition, the Governor's Office of Planning and Research (OPR) released a Technical Advisory on Evaluating Transportation Impacts in CEQA (December of 2018) (**Technical Advisory**) (1).

Based on the Technical Advisory, the City of Menifee City Council adopted analytical procedures, screening tools and impact thresholds for VMT, which are documented in the recently updated City of Menifee Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (January 2022) (**City Guidelines**) (2). For the purposes of this VMT evaluation the City Guidelines have been used.

PROJECT SCREENING

The City Guidelines provides details on appropriate screening criteria that can be used to identify when a proposed land use project is anticipated to result in a less than significant impact without conducting a more detailed project level analysis. To aid in the project-level VMT screening process the City of Menifee utilizes the WRCOG VMT Screening Tool (**Screening Tool**). The web-based Screening Tool allows a user to select an assessor's parcel to determine if a project's physical location meets one or more of

the land use screening thresholds documented in the City Guidelines. Screening criteria is broken into three steps:

Step 1: Transit Priority Area (TPA) Screening
Step 2: Low VMT Area Screening
Step 3: Project Type Screening

A land use project need only to meet one of the above screening criteria to result in a less than significant impact.

STEP 1: TPA SCREENING

Consistent with guidance identified in the City Guidelines, projects located within a Transit Priority Area (TPA) (i.e., within ½ mile of an existing "major transit stop"[1] or an existing stop along a "high-quality transit corridor"[2]) may be presumed to have a less than significant impact absent substantial evidence to the contrary.

However, the presumption may not be appropriate if a project:

- Has a Floor Area Ratio (FAR) of less than 0.75;
- Includes more parking for use by residents, customers, or employees of the project than required by the jurisdiction (if the jurisdiction requires the project to supply parking);
- Is inconsistent with the applicable Sustainable Communities Strategy (as determined by the lead agency, with input from the Metropolitan Planning Organization); or
- Replaces affordable residential units with a smaller number of moderate- or high-income residential units.

Based on the Screening Tool, the Project site is shown not to be located within a TPA. (See Attachment B).

TPA screening criteria is not met.

STEP 2: LOW VMT AREA SCREENING

City Guidelines state that "Residential and office projects located within a low VMT-generating area are presumed to have a less than significant impact absent substantial evidence to the contrary. In addition, other employment-related and mixed-use land use projects may qualify for the use of screening if there

[1] Pub. Resources Code, § 21064.3 ("'Major transit stop' means a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods.").
[2] Pub. Resources Code, § 21155 ("For purposes of this section, a high-quality transit corridor means a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours.").

is a reasonable expectation that the project will generate VMT per service population that is similar to the existing land uses in the low VMT area."[3] The City uses the WRCOG screening tool to determine low areas of VMT. The screening tool uses the sub-regional RIVCOM model to measure VMT performance within individual traffic analysis zones (TAZ's) within the region. The Project's physical location based on parcel location is identified in the Screening Tool to determine Project TAZ's VMT per capita as compared to the City's impact threshold (i.e., project generated VMT per capita exceeds the County of Riverside General Plan Buildout VMT per capita). As the Project only contains a single land use, the City Guidelines states that the production/attraction home-based VMT per capita maybe be used to isolate home-based VMT[4].

The parcel containing the proposed Project was selected and the screening tool was evaluated for VMT per capita measure of VMT. Based on the Screening Tool results, the Project is located within a low VMT generating zone. The Project resides within TAZ 1048 and was shown to generate 2.6 VMT per capita whereas the City's impact threshold (i.e., County of Riverside General Plan Buildout VMT per service population) is 17.3 VMT per capita (See Attachment B).

Low VMT Area screening criteria is met.

STEP 3: PROJECT TYPE SCREENING

The City Guidelines identify that local serving retail less than 50,000 square feet or other local serving essential services (e.g., local parks, day care centers, public schools, medical/dental office buildings, etc.) are presumed to have a less than significant impact absent substantial evidence to the contrary. The Project does not intend to develop any local serving retail uses.

Additionally, the City Guidelines also indicate that projects generating fewer than 110 daily vehicle trips may be presumed to have a less than significant impact. Trips generated by the Project's proposed land uses have been estimated based on trip generation rates collected by the Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition, 2021 (3). The proposed Project is anticipated to generate a total of 1,618 daily vehicle trips which exceeds the 110 daily vehicle trip threshold.

The Project Type screening threshold is not met.

[3] City Guidelines; Page 11
[4] City Guidelines; Page 15

CONCLUSION

In summary, the Project was found to meet the low VMT area screening criteria; no further VMT analysis is required.

If you have any questions, please contact me directly at aso@urbanxroads.com.

Respectfully submitted,
URBAN CROSSROADS, INC.

Alexander So
Senior Associate

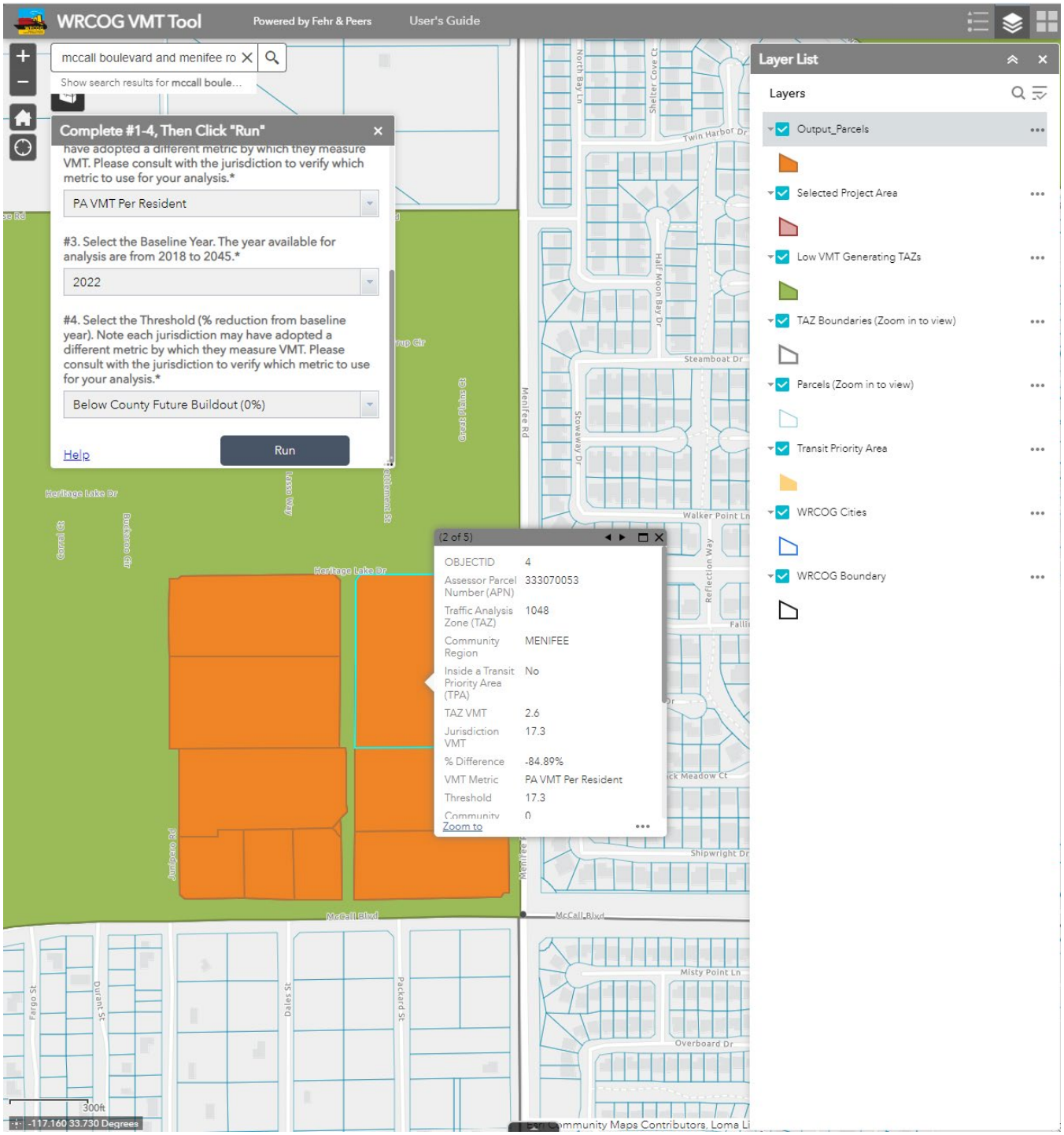
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2. **City of Menifee.** *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled.* City of Menifee : s.n., January 2022.
3. **Institute of Transportation Engineers.** *Trip Generation Manual.* 11th Edition. 2021.

ATTACHMENT A:
PROJECT SITE MAP


1462.4
1462.4
1462.3
1462.3
1464.3
1464.3
1465.3
1465.3
MAIN ENTRY
MENIFEE ROAD
JUNIPERO ROAD
#1
#2
#3
#23
#24
#19
#18
#17
#5
#4
#22
#21
#20
#6
#8
#10
#12
#13
#15
#7
#9
#11
#14
CLUB HOUSE
POOL
R/W / PROPOSED IMPROVEMENTS
ENTRY
SCE EASEMENT
LANDSCAPE
6' BLOCK WALL
LANDSCAPE/ MEANDERING SIDEWALK
A-1

ATTACHMENT B:
WRCOG SCREENING ASSESSMENT


WRCOG VMT Tool
Powered by Fehr & Peers
User's Guide
mccall boulevard and menifee ro
Show search results for mccall boule...
Complete #1-4, Then Click "Run"
have adopted a different metric by which they measure VMT. Please consult with the jurisdiction to verify which metric to use for your analysis.*
PA VMT Per Resident
#3. Select the Baseline Year. The year available for analysis are from 2018 to 2045.*
2022
#4. Select the Threshold (% reduction from baseline year). Note each jurisdiction may have adopted a different metric by which they measure VMT. Please consult with the jurisdiction to verify which metric to use for your analysis.*
Below County Future Buildout (0%)
Help
Run
(2 of 5)
OBJECTID 4
Assessor Parcel Number (APN) 333070053
Traffic Analysis Zone (TAZ) 1048
Community Region MENIFEE
Inside a Transit Priority Area (TPA) No
TAZ VMT 2.6
Jurisdiction VMT 17.3
% Difference -84.89%
VMT Metric PA VMT Per Resident
Threshold 17.3
Zoom to
Layer List
Layers
Output_Parcels
Selected Project Area
Low VMT Generating TAZs
TAZ Boundaries (Zoom in to view)
Parcels (Zoom in to view)
Transit Priority Area
WRCOG Cities
WRCOG Boundary
Heritage Lake Dr
McCall Blvd
Juniper Rd
Menifee Rd
Twin Harbor Dr
Steamboat Dr
Walker Point Ln
Shipwright Dr
Misty Point Ln
Overboard Dr
Fargo St
Quant St
Dyer St
Packard St
300ft
-117.160 33.730 Degrees

ATTACHMENT C:
PROJECT TRIP GENERATION

TABLE 1: PROJECT TRIP GENERATION RATES

Land Use[1]	ITE LU Code	Units[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Trip Generation Rates:									
Multifamily (Low-Rise) Residential	220	DU	0.10	0.30	0.40	0.32	0.19	0.51	6.74

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 11th Edition (2021).

[2] DU = Dwelling Units

TABLE 2: PROJECT TRIP GENERATION SUMMARY

Land Use	Quantity	Units[1]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Trip Generation Summary:									
Village at Junipero	240	DU	23	73	96	77	45	122	1,618

[1] DU = Dwelling Units

URBAN | CROSSROADS

THE VILLAGE AT JUNIPERO (DEV2022-006)

TRAFFIC ANALYSIS

PREPARED BY: Charlene So, PE | cso@urbanxroads.com
Aric Evatt | aevatt@urbanxroads.com



Reference Number	Agency	Date
14854-06 TA Report	City of Menifee	February 22, 2023

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Appendix 5.2: E+P Conditions Traffic Signal Warrant Analysis Worksheets

Appendix 5.3: E+P Conditions Freeway Off- Peak Hour Queuing Analysis Worksheets

Appendix 6.1: Opening Year Cumulative (2025) Without Project Conditions Intersection Operations Analysis Worksheets

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Appendix 6.3: Opening Year Cumulative (2025) Without Project Conditions Traffic Signal Warrant Analysis Worksheets

Appendix 6.4: Opening Year Cumulative (2025) With Project Conditions Traffic Signal Warrant Analysis Worksheets

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
CA MUTCD	California Manual on Uniform Traffic Control Devices
Caltrans	California Department of Transportation
CMP	Congestion Management Program
DIF	Development Impact Fee
DU	Dwelling Units
E+P	Existing Plus Project
HCM	Highway Capacity Manual
ITE	Institute of Transportation Engineers
LOS	Level of Service
NP	No (Without) Project
PHF	Peak Hour Factor
Project	The Village at Junipero
RTA	Riverside Transit Authority
TA	Traffic Analysis
v/c	Volume to Capacity
vphgpl	Vehicles per Hour Green per Lane
WP	With Project
WRCOG	Western Riverside Council of Governments

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1 INTRODUCTION

This report presents the results of the Traffic Analysis (TA) for The Village at Junipero ("Project"), which is located on the southwest corner of Menifee Road and Heritage Lake Drive, in the City of Menifee, as shown on Exhibit 1-1. The purpose of this TA is to evaluate the potential circulation system deficiencies that may result from the development of the proposed Project, and where necessary recommend improvements to achieve acceptable operations consistent with General Plan level of service goals and policies. This traffic study has been prepared in accordance with the City's Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (adopted June 3, 2020), and consultation with City staff during the traffic study scoping process. (1) The Project Traffic Study Scoping agreement is provided in Appendix 1.1 of this TA.

1.1 SUMMARY OF FINDINGS

The Project is to construct the following improvements as design features in conjunction with development of the site:

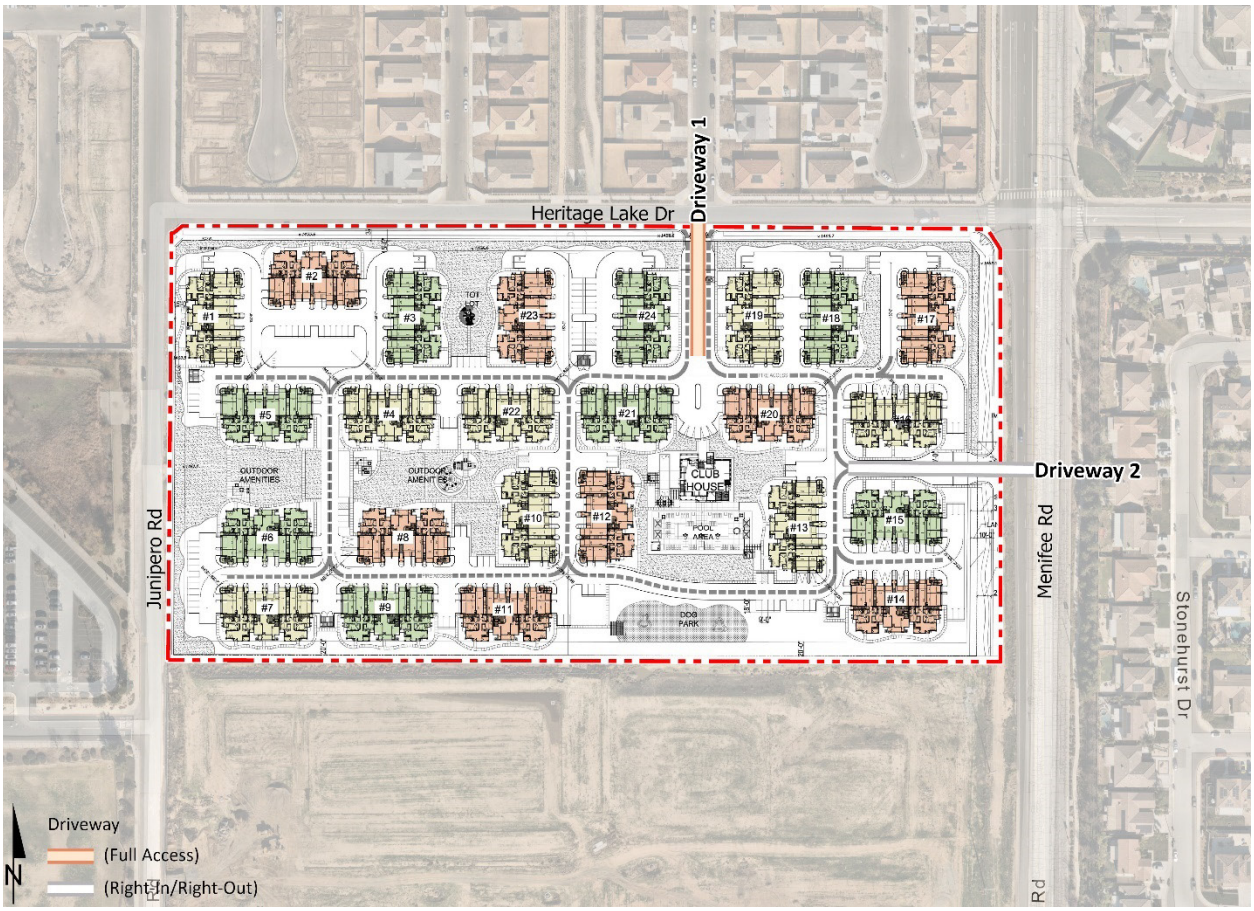
- The proposed driveway (Driveway 1) on Heritage Lake Drive will be stop controlled for exiting (egress) traffic and will allow full turning movements. The driveway should align with the existing Settlement Street to the north.
- The proposed driveway (Driveway 2) on Menifee Road will be stop controlled for exiting (egress) traffic and will be restricted to right-in/right-out access only. Improvements to Menifee Road shall include a raised median in order to prohibit left-in and left-out access at Driveway 2.
- Project to construct Junipero Road at its ultimate half-section-width as a Collector (74-foot right-of-way) from Heritage Lake Drive to the Project's southern boundary consistent with the City's standards.
- Project to construct Heritage Lake Drive at its ultimate half-section-width as a Collector (74-foot right-of-way) from Junipero Road to Menifee Road consistent with the City's standards. Construction of the Project's ultimate half-section along Heritage Lake Drive would complete the ultimate 2-lane section, including improvements to accommodate curb-and-gutter, sidewalk, and landscaping improvements.
- Project to construct Menifee Road at its ultimate half-section width as an Urban Arterial Highway (152-foot right-of-way) from Heritage Lake Drive to the Project's southern boundary to be consistent with the City's standards. Similar to the east side of Menifee Road, the roadway will need to be striped along the Project's frontage to provide the appropriate lanes and transitions between the existing lanes to the north and south of the Project.

Additional details and intersection lane geometrics are provided in Section 1.6 Recommendations of this report. The proposed Project is not anticipated to require the construction of any off-site improvements. However, the Project Applicant would be required to pay requisite fees consistent with the City's requirements (see Section 7 Local and Regional Funding Mechanisms) to address its contribution to future cumulative off-site improvement needs.

EXHIBIT 1-1: LOCATION MAP



EXHIBIT 1-2: PRELIMINARY SITE PLAN



1.2 PROJECT OVERVIEW

A preliminary site plan for the proposed Project is shown on Exhibit 1-2. The Project is proposed to consist of the development of 240 market-rate apartments (multifamily (low-rise, 2-3 floors) residential). As indicated on Exhibit 1-2, vehicular access will be provided via a primary access on Heritage Lake Drive (via full access driveway) and a secondary right-in/right-out driveway on Menifee Road. Regional access to the Project site is accommodated from the I-215 Freeway via McCall Boulevard. In order to develop the traffic characteristics of the proposed project, trip-generation statistics published in the Institute of Transportation Engineers (ITE) Trip Generation Manual (11th Edition, 2021). (2) The Project is anticipated to generate a net total of 1,618 two-way trips per day with 96 AM peak hour trips and 122 PM peak hour trips. The assumptions and methods used to estimate the Project's trip generation characteristics are discussed in greater detail in Section 4.1 Project Trip Generation of this report.

1.3 ANALYSIS SCENARIOS

For the purposes of this traffic study, potential deficiencies to traffic and circulation have been assessed for each of the following conditions:

- Existing (2022) Conditions
- Existing plus Project (E+P) Conditions
- Opening Year Cumulative (2025) Without Project Conditions
- Opening Year Cumulative (2025) With Project Conditions

1.3.1 EXISTING (2022) CONDITIONS

Information for Existing (2022) conditions is disclosed to represent the baseline traffic conditions as they existed at the time this report was prepared. Local schools were in session with in-person instruction at the time of the traffic counts. Traffic counts were conducted in September 2022.

1.3.2 EXISING PLUS PROJECT CONDITIONS

The Existing plus Project (E+P) conditions analysis determines the potential circulation system deficiencies based on a comparison of the E+P traffic conditions to Existing conditions. The roadway network is similar to Existing conditions except for new connections to be constructed by the Project. Cumulative development projects and ambient growth are not included for E+P traffic conditions.

1.3.3 OPENING YEAR CUMULATIVE (2025) CONDITIONS

The Opening Year Cumulative (2025) traffic conditions analysis determines the potential near-term cumulative circulation system deficiencies. To account for growth in traffic between Existing (2022) traffic conditions and the Project Opening Year Cumulative (2025), a growth rate of 6.12 percent was assumed (2.0 percent per year, compounded annually over 3 years). The roadway network is similar to Existing conditions except for new connections to be constructed by the Project. Conservatively, this TA adds traffic generated by other known or probable related projects to the existing baseline condition, although it may not be feasible that these projects would be completed within the year. The resulting traffic growth utilized in the TA (traffic generated by related projects) would therefore tend

to overstate rather than understate background cumulative traffic deficiencies under 2025 traffic conditions.

1.4 STUDY AREA

To ensure that this TA satisfies the City of Menifee's traffic study requirements, Urban Crossroads, Inc. prepared a Project traffic study scoping package for review by City of Menifee staff prior to the preparation of this report. This agreement provides an outline of the Project study area, trip generation, trip distribution, and analysis methodology. The scoping agreement is included in Appendix 1.1 of this TA.

1.4.1 INTERSECTIONS

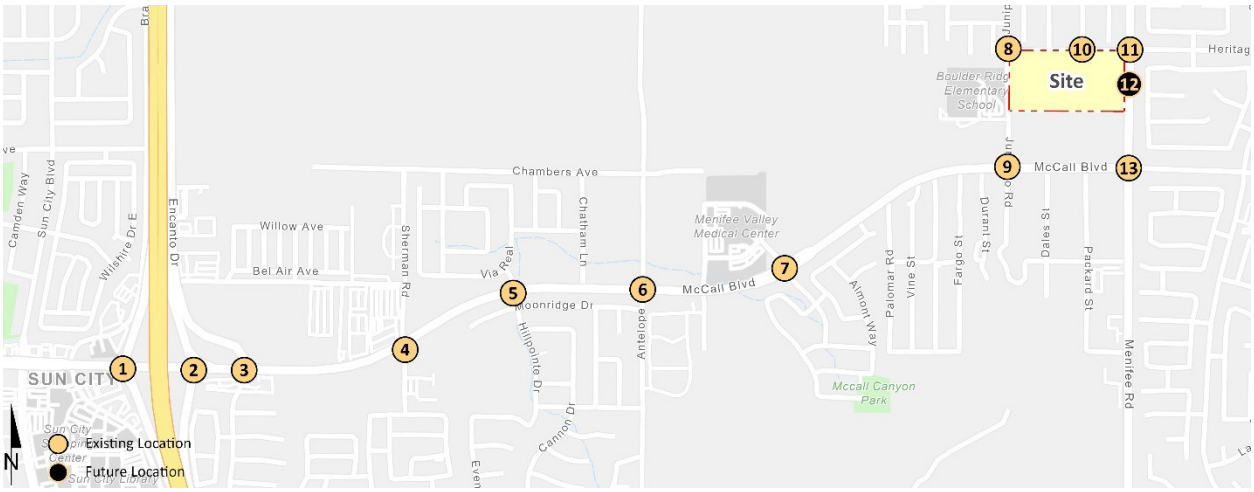
The 13 study area intersections shown on Exhibit 1-3 and listed in Table 1-1 were selected for evaluation in this TA. At a minimum, the study area includes intersections where the Project is anticipated to contribute 50 or more peak hour trips per the City's traffic study guidelines. (1) The "50 peak hour trip" criterion represents a minimum number of trips at which a typical intersection would have the potential to be affected by a given development proposal. The 50 peak hour trip criterion is a traffic engineering rule of thumb that is accepted and widely used within Riverside County (including the City of Menifee) for estimating a potential area of influence (i.e., study area).

The intent of a CMP is to more link land use, transportation, and air quality, thereby prompting reasonable growth management programs that will effectively utilize new transportation funds, alleviate traffic congestion and related deficiencies, and improve air quality. The County of Riverside CMP became effective with the passage of Proposition 111 in 1990 and most recently updated in 2019 as part of the Riverside County Long Range Transportation Study. The Riverside County Transportation Commission (RCTC) adopted the 2019 CMP for the County of Riverside in December 2019. (3) There are no study area intersections identified as a Riverside County CMP intersection.

TABLE 1-1: INTERSECTION ANALYSIS LOCATIONS

ID	Intersection	Jursidiction	CMP?
1	I-215 SB Ramps & McCall Bl.	Menifee, Caltrans	No
2	I-215 NB Ramps & McCall Bl.	Menifee, Caltrans	No
3	Encanto Dr. & McCall Bl.	Menifee	No
4	Sherman Rd. & McCall Bl.	Menifee	No
5	Via Entrada/Hillpointe Dr. & McCall Bl.	Menifee	No
6	Antelope Rd. & McCall Bl.	Menifee	No
7	Oak Hurst Av. & McCall Bl.	Menifee	No
8	Junipero Rd. & Heritage Lakes Dr.	Menifee	No
9	Junipero Rd. & McCall Bl.	Menifee	No
10	Settlement St./Driveway 1 & Heritage Lakes Dr.	Menifee	No
11	Menifee Rd. & Heritage Lakes Dr.	Menifee	No
12	Menifee Rd. & Driveway 2	Menifee	No
13	Menifee Rd. & McCall Bl.	Menifee	No

EXHIBIT 1-3: STUDY AREA



1.4.2 ROADWAY SEGMENTS

Daily volume-to-capacity (v/c) have also been evaluated for the following roadway segments list in Table 1-2:

TABLE 1-2: ROADWAY SEGMENT ANALYSIS LOCATIONS

ID	Roadway Segment
1	McCall Bl. between I-215 Freeway and Encanto Dr.
2	McCall Bl. between Encanto Dr. & Sherman Rd.
3	McCall Bl. between Oak Hurst Av. & Junipero Rd.
4	McCall Bl. between Junipero Rd. & Menifee Rd.
5	Junipero Rd. between Heritage Lake Dr. & McCall Bl.
6	Heritage Lakes Drive, West of Menifee Road
7	Menifee Road, South of Heritage Lakes Drive

1.5 DEFICIENCIES

This section provides a summary of deficiencies by analysis scenario. Section 2 Methodologies provides information on the methodologies used in the analysis and Section 5 E+P Traffic Conditions and Section 6 Opening Year Cumulative (2025) Traffic Conditions includes the detailed analysis. A summary of level of service (LOS) results for all analysis scenarios is presented on Table 1-3.

TABLE 1-3: SUMMARY OF LOS

		Existing		E+P		2025 Without Project		2025 With Project	
#	Intersection	AM	PM	AM	PM	AM	PM	AM	PM
1	I-215 SB Ramps & McCall Bl.	A - D	A - D	A - D	A - D	A - D	E	A - D	E
2	I-215 NB Ramps & McCall Bl.	A - D	A - D	A - D	A - D	A - D	A - D	A - D	A - D
3	Encanto Dr. & McCall Bl.	A - D	A - D	A - D	A - D	A - D	A - D	A - D	A - D
4	Sherman Rd.& McCall Bl.	A - D	A - D	A - D	A - D	A - D	A - D	A - D	A - D
5	Via Entrada/Hillpointe Dr. & McCall Bl.	A - D	A - D	A - D	A - D	A - D	A - D	A - D	A - D
6	Antelope Rd. & McCall Bl.	A - D	A - D	A - D	A - D	A - D	A - D	A - D	A - D
7	Oak Hurst Av. & McCall Bl.	A - D	A - D	A - D	A - D	A - D	A - D	A - D	A - D
8	Junipero Rd. & Heritage Lake Dr.	A - D	A - D	A - D	A - D	A - D	A - D	A - D	A - D
9	Junipero Rd. & McCall Bl.	A - D	A - D	A - D	A - D	A - D	A - D	A - D	A - D
10	Settlement St./Driveway 1 & Heritage Lake Dr.	A - D	A - D	A - D	A - D	A - D	A - D	A - D	A - D
11	Menifee Rd. & Heritage Lake Dr.	A - D	A - D	A - D	A - D	A - D	A - D	A - D	A - D
12	Menifee Rd. & Driveway 2	N/A	N/A	A - D	A - D	N/A	N/A	A - D	A - D
13	Menifee Rd. & McCall Bl.	A - D	A - D	A - D	A - D	F	A - D	F	A - D

A - D = A - D E = E F = F

1.5.1 EXISTING (2022) CONDITIONS

Intersections

The study area intersections are currently operating at an acceptable LOS during the peak hours.

Roadway Segments

All of the study area roadway segments currently operate at an acceptable LOS under Existing (2022) traffic conditions, with the exception of the following:

- McCall Bl. from Oak Hurst Av. to Junipero Rd. (#3) – LOS E

1.5.2 E+P CONDITIONS

Intersections

The study area intersections are anticipated to continue to operate at an acceptable LOS during the peak hours with the addition of Project traffic under E+P traffic conditions.

Roadway Segments

Similarly, the study area roadway segments are anticipated to operate at an acceptable LOS with the addition of Project traffic, with the exception of the following:

- McCall Bl. from Oak Hurst Av. to Junipero Rd. (#3) – LOS F

1.5.3 OPENING YEAR CUMULATIVE (2025) CONDITIONS

Intersections

The following study area intersections are anticipated to operate at an unacceptable LOS under Opening Year Cumulative (2025) Without Project traffic conditions:

- I-215 SB Ramps & McCall Bl. (#1) – LOS E PM peak hour only
- Menifee Rd. & McCall Bl. (#13) – LOS F AM peak hour only

There are no additional deficient study area intersections anticipated with the addition of Project traffic.

Roadway Segments

The following study area roadway segments are anticipated to operate at an unacceptable LOS under Opening Year Cumulative (2025) Without Project traffic conditions:

- McCall Bl. from I-215 Freeway to Encanto Dr. (#1) – LOS F
- McCall Bl. from Encanto Dr. to Sherman Rd. (#2) – LOS F
- McCall Bl. from Oak Hurst Av. to Junipero Rd. (#3) – LOS F

There are no additional deficient study area roadway segments anticipated with the addition of Project traffic.

1.6 RECOMMENDATIONS

1.6.1 SITE ADJACENT AND SITE ACCESS RECOMMENDATIONS

The following recommendations are based on the minimum improvements needed to accommodate site access and maintain acceptable peak hour operations for the proposed Project. The site adjacent recommendations are shown on Exhibits 1-4.

Recommendation 1 **–** Driveway 1/Settlement Street & Heritage Lake Drive (#10) – The following improvements are necessary to accommodate site access:

- Project to install a stop control on the northbound approach. The driveway should align with the existing Settlement Street to the north and will allow for full turning movements (no access restrictions).

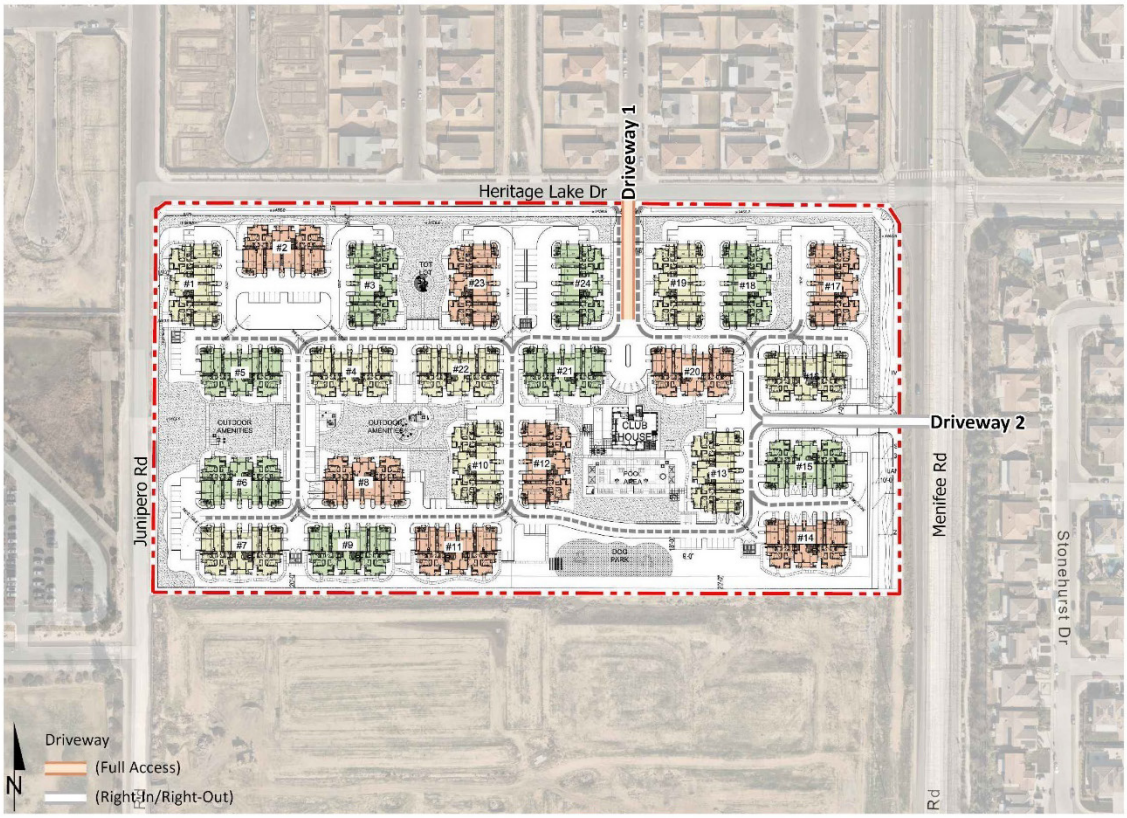
Recommendation 2 **–** Menifee Road & Driveway 2 (#12) – The following improvements are necessary to accommodate site access:

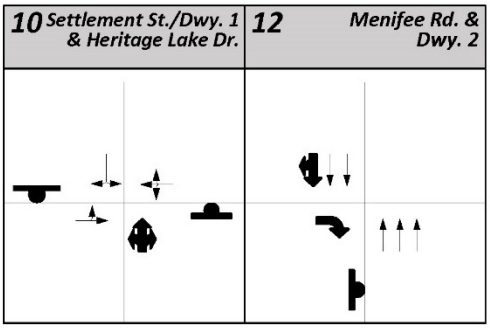
- Project to install a stop control on the eastbound approach. The driveway should be restricted to right-in/right-out access only. Improvements to Menifee Road shall include a raised median in order to prohibit left-in and left-out access at Driveway 2.

Recommendation 3 **–** Junipero Road **–** Junipero Road is a north-south roadway located along the Project's western boundary. Project to construct Junipero Road at its ultimate half-section-width as a Collector (74-foot right-of-way) from Heritage Lake Drive to the Project's southern boundary consistent with the City's standards.

Recommendation 4 **–** Heritage Lake Drive **–** Heritage Lake Drive is an east-west roadway located along the Project's northern boundary. Project to construct Heritage Lake Drive at its ultimate half-section-width as a Collector (74-foot right-of-way) from Junipero Road to Menifee Road consistent with the City's standards. Construction of the Project's ultimate half-section along Heritage Lake Drive would complete the ultimate 2-lane section including providing improvements for curb-and-gutter, sidewalk, and landscape along the southern side of the street.

EXHIBIT 1-4: SITE ACCESS RECOMMENDATIONS





= Stop Sign
= Stop Sign Improvement
= Existing Lane
= Lane Improvement

Recommendation 5 – Menifee Road – Menifee Road is a north-south roadway located along the Project's eastern boundary. Project to construct Menifee Road at its ultimate half-section width as an Urban Arterial Highway (152-foot right-of-way) from Heritage Lake Drive to the Project's southern boundary consistent with the City's standards. Similar to the east side of Menifee Road, the roadway will need to be striped along the Project's frontage to provide the appropriate lanes and transitions between the existing lanes to the north and south of the Project.

On-site traffic signing and striping should be implemented agreeable with the provisions of the California Manual on Uniform Traffic Control Devices (CA MUTCD) and in conjunction with detailed construction plans for the Project site.

Sight distance at each project access point should be reviewed with respect to standard Caltrans and City of Menifee sight distance standards at the time of preparation of final grading, landscape, and street improvement plans.

Internal Project roadways will also be constructed with sidewalks that connect with the sidewalks along the Project's frontage. Both Heritage Lake Drive and Junipero Road are Class III (unstriped, on-road bike routes) and Menifee Road is a Class II bike route (striped, on-road bike route). Class II bike lanes are currently striped along Menifee Road (south of Heritage Lake Drive on the east side). The Project should maintain and stripe bike lanes along its frontage consistent with City standards.

1.6.2 QUEUING ANALYSIS AT THE PROJECT DRIVEWAYS

A queuing analysis was conducted at the study area intersections for Opening Year Cumulative (2025) With Project traffic conditions to determine the turn pocket lengths necessary to accommodate 95th percentile queues. The analysis was conducted for the weekday AM and weekday PM peak hours. The results have been provided in Appendix 1.2.

SimTraffic is designed to model networks of signalized and unsignalized intersections, with the primary purpose of checking and fine-tuning signal operations. SimTraffic uses the input parameters from Synchro to generate random simulations. The 95th percentile queue is derived from the average queue plus 1.65 standard deviations. A vehicle is considered queued whenever it is traveling at less than 10 feet/second. The random simulations generated by SimTraffic have been utilized to determine the 95th percentile queue lengths observed for each turn movement. A SimTraffic simulation has been recorded five (5) times, during the weekday AM and weekday PM peak hours, and has been seeded for 15-minute periods with 60-minute recording intervals.

Table 1-4 summarizes the 95th percentile peak hour queues at the Project driveways. No queuing issues are anticipated at the Project access points with the recommended storage improvements shown on Table 1-4.

TABLE 1-4: PEAK HOUR QUEUING SUMMARY

#	Intersection	Movement	Available Stacking Distance (Feet)[2]	2025 With Project 95th Percentile Queue (Feet)		Acceptable?[1]	
				AM Peak Hour	PM Peak Hour	AM	PM
10	Driveway 1 & Heritage Lake Dr.	NBL/T/R	**60**	50	43	Yes	Yes
		SBL/T/R	70	42	26	Yes	Yes
		EBL/T/R	330	5	0	Yes	Yes
		WBL/T/R	400	5	10	Yes	Yes
12	Menifee Rd. & Driveway 2	SBT/R	320	0	9	Yes	Yes
		EBR	**60**	48	41	Yes	Yes

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided.

[2] **60** = Improvement

1.6.3 OFF-SITE RECOMMENDATIONS

The recommended improvements needed to address the cumulative deficiencies identified under E+P and Opening Year Cumulative (2025) traffic conditions are shown in Table 1-5. Improvements that appear under E+P traffic conditions would be the Project's responsibility to construct to maintain acceptable LOS. For those improvements listed in Table 1-5 and not constructed as part of the Project, the Project Applicant's responsibility for the Project's contributions towards deficient intersections is fulfilled through payment of fair share that would be assigned to construction of the identified recommended improvements. The Project Applicant would be required to pay fair share fees consistent with the City's requirements (see Section 7 Local and Regional Funding Mechanisms).

TABLE 1-5: SUMMARY OF IMPROVEMENTS BY ANALYSIS SCENARIO

#	Intersection Location	Jurisdiction	Analysis Scenario E+P	Analysis Scenario 2025 With Project	Improvements in TUMF/City DIF[1]	Project Responsibility[2]	Project Fair Share[3]
1	I-215 SB Ramps & McCall Bl.	Menifee, Caltrans	- None	- Add 2nd WB left turn lane	Yes (TUMF)	Payment of Fees[5]	--
13	Menifee Rd. & McCall Bl.	Menifee	- None	- Add 2nd NB left turn lane[4]	No	Fair Share	3.3%
				- Add EB right turn lane with overlap phasing	No	Fair Share	3.3%
	McCall Bl. - I-215 to Encanto Dr.	Menifee	- None	- Add 3rd EB through lane	No	Fair Share	5.6%
				- Add 3rd WB through lane	No	Fair Share	5.6%
	McCall Bl. - Encanto Dr. to Sherman Rd.	Menifee	- None	- Add 3rd EB through lane	No	Fair Share	6.3%
				- Add 3rd WB through lane	No	Fair Share	6.3%
	McCall Bl. - Sherman Rd. to Hillpointe Dr.	Menifee	- None	- Add 3rd EB through lane	No	Fair Share	7.6%
				- Add 3rd WB through lane	No	Fair Share	7.6%
	McCall Bl. - Hillpointe Dr. to Antelope Rd.	Menifee	- None	- Add 3rd EB through lane	No	Fair Share	7.8%
				- Add 3rd WB through lane	No	Fair Share	7.8%
	McCall Bl. - Antelope Rd. to Oakhurst Dr.	Menifee	- None	- Add 3rd EB through lane	No	Fair Share	8.9%
				- Add 3rd WB through lane	No	Fair Share	8.9%
	McCall Bl. - Oakhurst Av. to Junipero Rd.	Menifee	- None	- Add 2nd EB through lane	Yes (TUMF)	Payment of Fees[5]	--
				- Add 3rd EB through lane	No	Fair Share	9.5%
				- Add 2nd WB through lane	Yes (TUMF)	Payment of Fees[5]	--
				- Add 3rd WB through lane	No	Fair Share	9.5%

[1] Improvements included in City's DIF or County's TUMF program have been identified as such.

[2] Identifies whether an improvement is a construct obligation, fair share contribution, or fee payment (if included in a pre-existing fee program).

[3] Total project fair share percentage is applicable to the improvements which are not already included in the City DIF for those intersections wholly or partially within the City.

[4] Restripe the northbound approach to accommodate 2 left turn lanes, one through, and one shared through-right turn lane.

[5] DIF Payment = $5,639 x 240 units = **$1,353,360** (of which $792,720 is allocated to Circulation Improvements).
TUMF Payment = $6,580 x 240 units = **$1,579,200**.

1.8 SIGHT DISTANCE ANALYSIS

Horizontal sight distance has been evaluated for both Project driveways along Heritage Lake Drive and Menifee Road based on the City's guidelines. As defined by the California Department of Transportation (Caltrans) Highway Design Manual, sight distance is the continuous length of highway ahead visible to the driver.

At unsignalized intersections, corner sight distance must provide a substantially clear line of sight between the driver of the vehicle waiting on the minor road (driveway) and the driver of an approaching vehicle. For the purposes of this analysis, a 7 ½ second criterion has been applied to the outside travel lanes in either direction to provide the most conservative sight distance. The 7 ½ second criterion allows waiting vehicles to either cross all lanes of through traffic by turning left or cross the near lanes by turning right without requiring through traffic to radically alter their speed. Vertical sight distance has been evaluated utilizing a 3.5-foot eye height and a 4.25-foot object height. The sight distance is based on the posted speed limit.

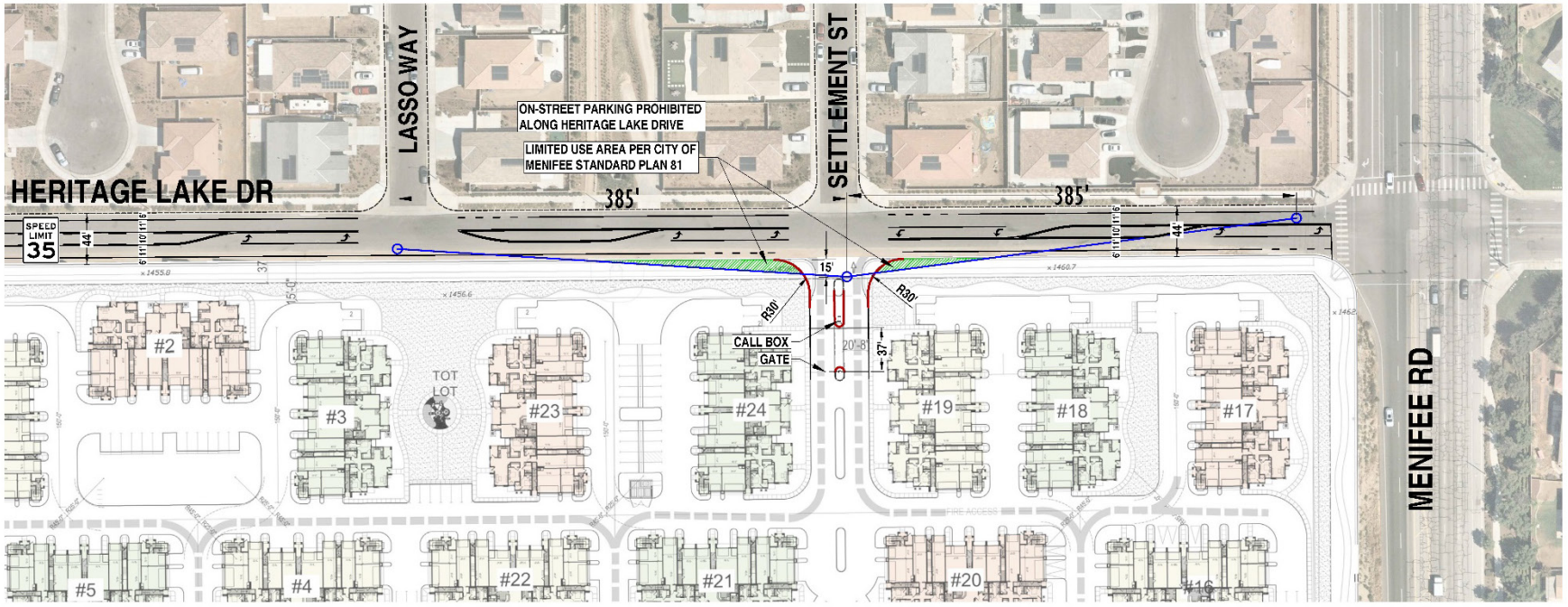
Adequate visibility for vehicular and pedestrian traffic can be provided at each Project driveway by limiting sight obstructions within the limited use area. Any landscaping/hardscape within the limited use area should not exceed 30-inches (2.5-feet) in height. The limited use area should be kept clear of any landscaping or any other obstructions that may impede the visibility of the driver, including on-street parking. Minimum horizontal sight distances for the Project driveways are illustrated on Exhibit 1-5 for both Driveway 1 and Driveway 2, however, sight distance should be re-evaluated in the field once the driveway has been constructed.

It is anticipated that the minimum 385-foot sight distance could be accommodated at Driveway 1 on Heritage Lake Drive, based on a posted speed limit of 25 miles per hour. Similarly, the minimum 605-foot sight distance can be accommodated at Driveway 2 on Menifee Road based on a posted speed limit of 55 miles per hour. The sight distance lines, limited use area, and clear sight triangles per City's standards are illustrated on Exhibit 1-5. As noted, obstructions within the limited use are to be limited to 30-inches in height.

1.9 SITE ACCESS & GATE STACKING

Based on the Project trip generation, there could be as many as 1.3 vehicles arriving every minute within the peak hour (on average during the PM peak hour, with fewer vehicles inbound vehicles during the AM peak hour). As shown on Exhibit 1-6, there is sufficient space to accommodate the minimum storage of 2 vehicles behind the call box for the gates (at both Driveway 1 and Driveway 2). There appears to be adequate spacing behind the gate to accommodate stacking of vehicles on-site based on the gate stacking analysis included in Appendix 1.2 as the 95th percentile queues are less than 2 vehicle car lengths (or 50-feet). However, as shown on Exhibit 1-6 in red, there are modifications recommended at both Driveway 1 and Driveway 2 in order to accommodate the turnaround of a single-unit truck (e.g., delivery vehicle) and accommodate adequate storage for a minimum of 2 vehicles behind the call box. Modifications include modifications to the curbed median and relocation of the proposed call box and gate at Driveway 1 and Driveway 2. In addition, accommodate a minimum curb radius of 30-feet on the corners at both Project driveways as noted on Exhibit 1-6. Vehicle turn-around are presented on Exhibit 1-7. Vehicle turns can be accommodated with the proposed modifications.

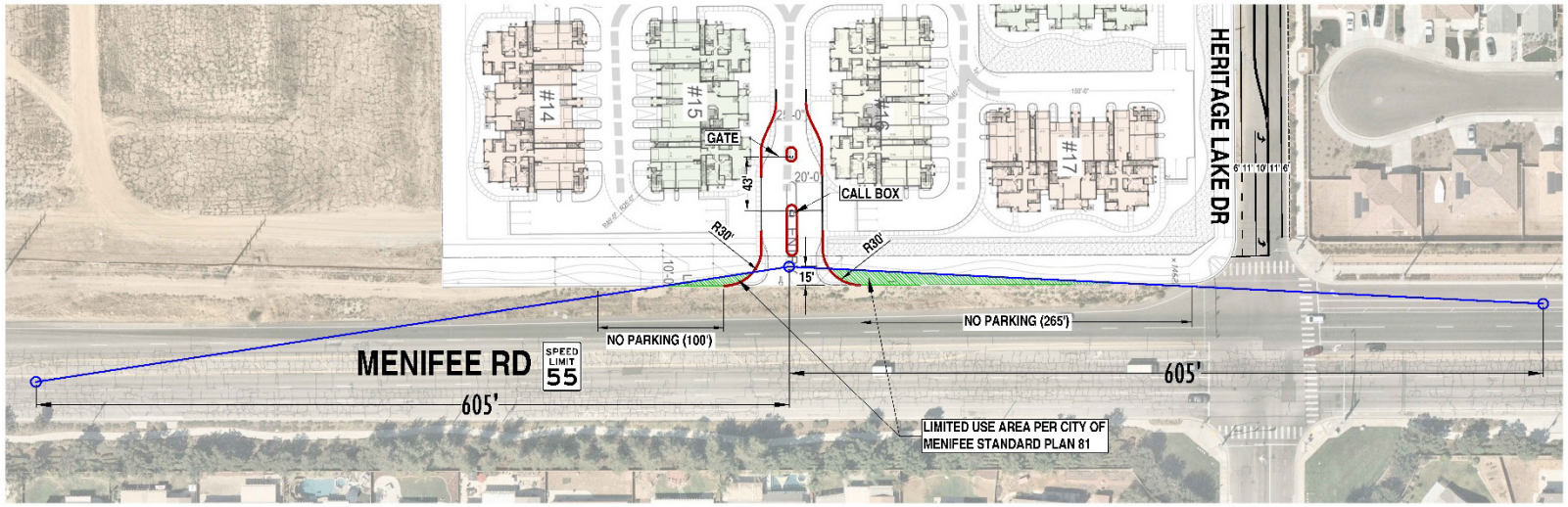
EXHIBIT 1-5: SIGHT DISTANCE



SCALE: 1" = 40' (ON 24" x 36" SHEET)
0 20 40 80 120 160

EXHIBIT A: INTERSECTION SIGHT DISTANCE
HERITAGE LAKE DR & MAIN ENTRANCE

URBAN CROSSROADS
WWW.URBANXROADS.COM
TELEPHONE # 949-660-1994



SCALE: 1" = 40' (ON 24" x 36" SHEET)
0 20 40 80 120 160

EXHIBIT A: INTERSECTION SIGHT DISTANCE
MENIFEE RD & SIDE ENTRANCE

URBAN CROSSROADS
WWW.URBANXROADS.COM
TELEPHONE # 949-660-1994

EXHIBIT 1-6: GATE STACKING

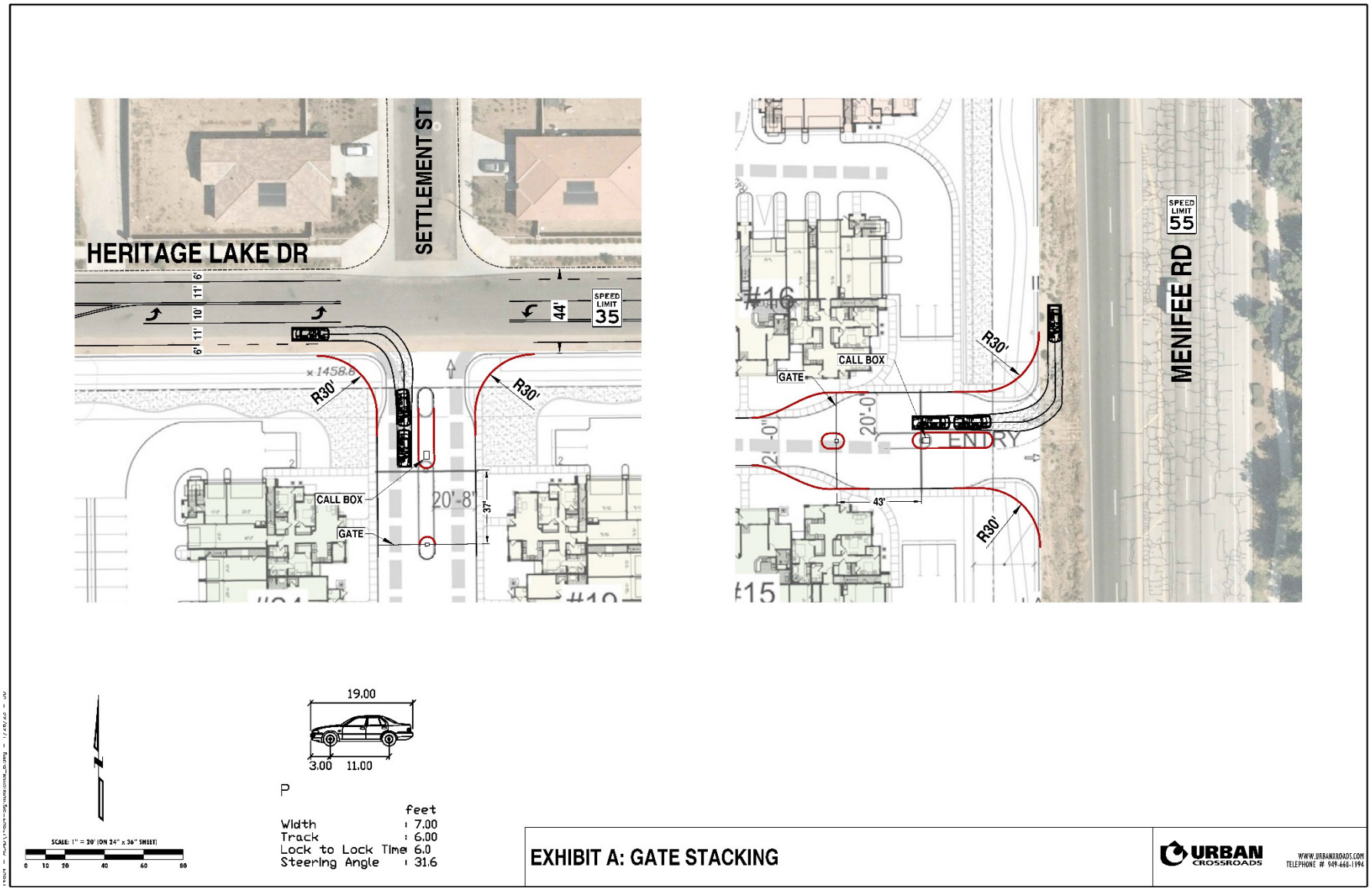
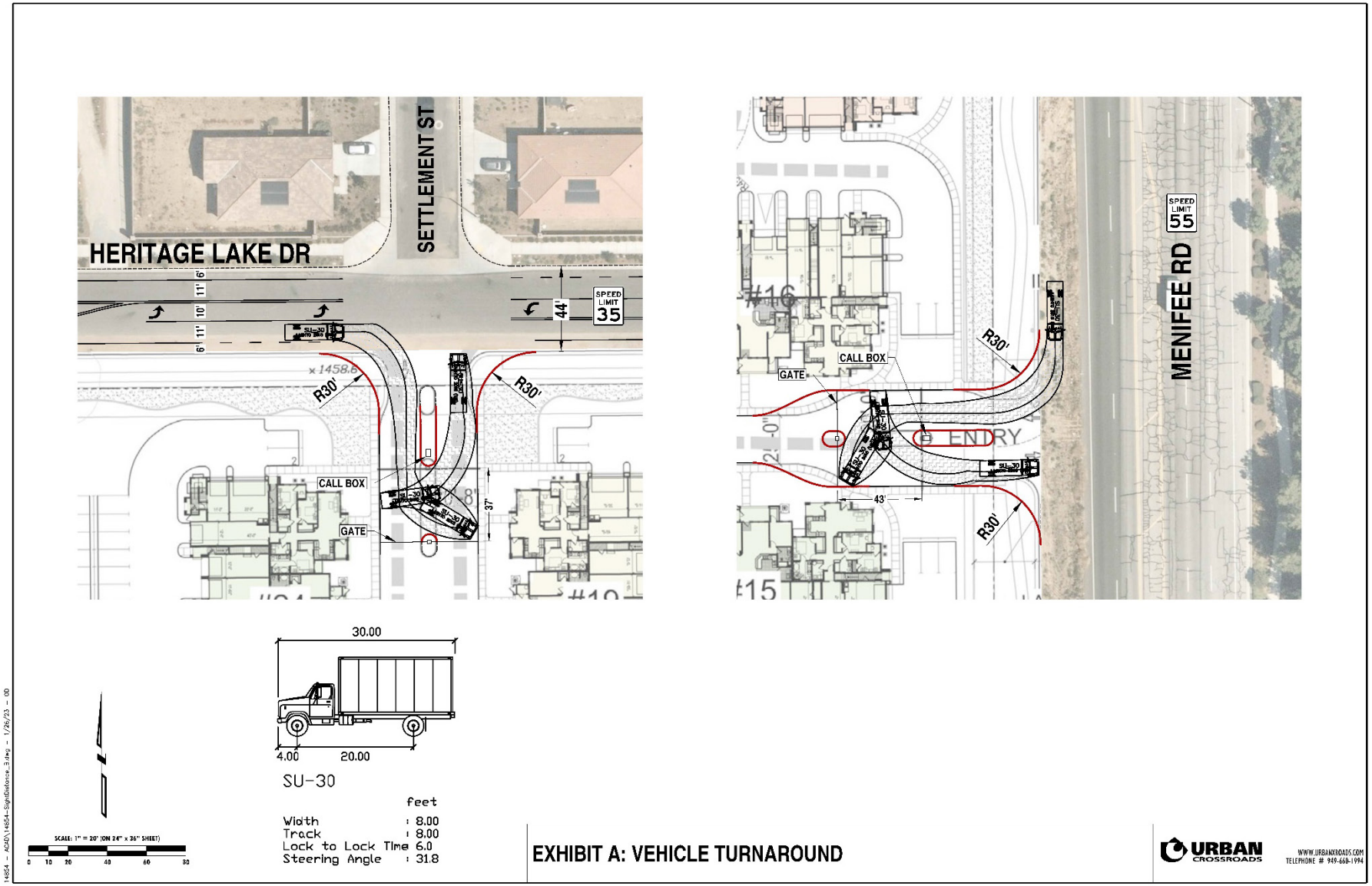


EXHIBIT 1-7: VEHICLE TURN-AROUND



2 METHODOLOGIES

This section of the report presents the methodologies used to perform the traffic analyses summarized in this report. The methodologies described are consistent with City of Menifee's Traffic Study Guidelines.

2.1 LEVEL OF SERVICE

Traffic operations of roadway facilities are described using the term "Level of Service" (LOS). LOS is a qualitative description of traffic flow based on several factors, such as speed, travel time, delay, and freedom to maneuver. Six levels are typically defined ranging from LOS A, representing completely free-flow conditions, to LOS F, representing breakdown in flow resulting in stop-and-go conditions. LOS E represents operations at or near capacity, an unstable level where vehicles are operating with the minimum spacing for maintaining uniform flow.

2.2 INTERSECTION CAPACITY ANALYSIS

The definitions of LOS for interrupted traffic flow (flow restrained by the existence of traffic signals and other traffic control devices) differ slightly depending on the type of traffic control. The LOS is typically dependent on the quality of traffic flow at the intersections along a roadway. The 6th Edition Highway Capacity Manual (HCM) methodology expresses the LOS at an intersection in terms of delay time for the various intersection approaches. (4) The HCM uses different procedures depending on the type of intersection control.

2.2.1 SIGNALIZED INTERSECTIONS

The City of Menifee requires signalized intersection operations analysis based on the methodology described in the HCM. (4) Intersection LOS operations are based on an intersection's average control delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. For signalized intersections LOS is related to the average control delay per vehicle and is correlated to a LOS designation as described on Table 2-1.

The traffic modeling and signal timing optimization software package Synchro (Version 11) is utilized to analyze signalized intersections within the study area. Synchro is a macroscopic traffic software program that is based on the signalized intersection capacity analysis as specified in the HCM. Macroscopic level models represent traffic in terms of aggregate measures for each movement at the study intersections. Equations are used to determine measures of effectiveness such as delay and queue length. The level of service and capacity analysis performed by Synchro takes into consideration optimization and coordination of signalized intersections within a network.

TABLE 2-1: SIGNALIZED INTERSECTION LOS THRESHOLDS

Description	Average Control Delay (Seconds), V/C ≤ 1.0	Level of Service, V/C ≤ 1.0[1]
Operations with very low delay occurring with favorable progression and/or short cycle length.	0 to 10.00	A
Operations with low delay occurring with good progression and/or short cycle lengths.	10.01 to 20.00	B
Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.01 to 35.00	C
Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.01 to 55.00	D
Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	55.01 to 80.00	E
Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.	80.01 and up	F

Source: HCM, 6th Edition

[1] If V/C is greater than 1.0 then LOS is F per HCM.

The traffic modeling and signal timing optimization software package Synchro (Version 11) has been utilized to analyze signalized intersections. Synchro is a macroscopic traffic software program that is based on the signalized intersection capacity analysis as specified in the HCM. Macroscopic level models represent traffic in terms of aggregate measures for each movement at the study intersections. Equations are used to determine measures of effectiveness such as delay and queue length. The level of service and capacity analysis performed by Synchro takes into consideration optimization and coordination of signalized intersections within a network.

The peak hour traffic volumes have been adjusted using a peak hour factor (PHF) to reflect peak 15-minute volumes. Customary practice for LOS analysis is to use a peak 15-minute rate of flow. However, flow rates are typically expressed in vehicles per hour. The PHF is the relationship between the peak 15-minute flow rate and the full hourly volume (e.g., PHF = [Hourly Volume] / [4 x Peak 15-minute Flow Rate]). The use of a 15-minute PHF produces a more detailed analysis as compared to analyzing vehicles per hour. Existing PHFs have been used for all analysis scenarios. Per the HCM, PHF values over 0.95 often are indicative of high traffic volumes with capacity constraints on peak hour flows while lower PHF values are indicative of greater variability of flow during the peak hour. (4)

2.2.2 UNSIGNALIZED INTERSECTIONS

The City of Menifee requires the operations of unsignalized intersections be evaluated using the methodology described in the HCM. (4) The LOS rating is based on the weighted average control delay expressed in seconds per vehicle (see Table 2-2). At two-way or side-street stop-controlled intersections, LOS is calculated for each controlled movement and for the left turn movement from the major street, as well as for the intersection as a whole. For approaches composed of a single lane, the delay is computed as the average of all movements in that lane. Delay for the intersection is reported for the worst individual movement at a two-way stop-controlled intersection. For all-way stop controlled intersections, LOS is computed for the intersection as a whole (average delay).

TABLE 2-2: UNSIGNALIZED INTERSECTION LOS THRESHOLDS

Description	Average Control Delay (Seconds), V/C ≤ 1.0	Level of Service, V/C ≤ 1.0[1]
Little or no delays.	0 to 10.00	A
Short traffic delays.	10.01 to 15.00	B
Average traffic delays.	15.01 to 25.00	C
Long traffic delays.	25.01 to 35.00	D
Very long traffic delays.	35.01 to 50.00	E
Extreme traffic delays with intersection capacity exceeded.	> 50.00	F

Source: HCM, 6th Edition

[1] If V/C is greater than 1.0 then LOS is F per HCM.

2.3 TRAFFIC SIGNAL WARRANT ANALYSIS METHODOLOGY

The term "signal warrants" refers to the list of established criteria used by the Caltrans and other public agencies to quantitatively justify or ascertain the potential need for installation of a traffic signal at an otherwise unsignalized intersection. This TA uses the signal warrant criteria presented in the latest edition of the California Department of Transportation (Caltrans) California Manual on Uniform Traffic Control Devices (CA MUTCD) for all study area intersections. (5)

The signal warrant criteria for Existing conditions are based upon several factors, including volume of vehicular and pedestrian traffic, frequency of accidents, and location of school areas. The Caltrans CA MUTCD indicates that the installation of a traffic signal should be considered if one or more of the signal warrants are met. (5) Specifically, this TA utilizes the Peak Hour Volume-based Warrant 3 as the appropriate representative traffic signal warrant analysis for existing study area intersections for all analysis scenarios. Warrant 3 is appropriate to use for this TA because it provides specialized warrant criteria for intersections with rural characteristics (e.g., located in communities with populations of less than 10,000 persons or with adjacent major streets operating above 40 miles per hour). For the purposes of this study, the speed limit was the basis for determining whether Urban or Rural warrants were used for a given intersection. Traffic signal warrant analyses were performed for the following study area intersection shown in Table 2-3.

TABLE 2-3: TRAFFIC SIGNAL WARRANT ANALYSIS LOCATIONS

ID	Intersection
8	Junipero Rd. & Heritage Lakes Dr.
10	Settlement St./Driveway 1 & Heritage Lakes Dr.

Traffic signal warrant analyses were performed for all of the full access unsignalized study area intersections, as such, traffic signal warrants have not been performed at the proposed Project driveways (with limited access, such as at Driveway 2). The traffic signal warrant analysis for Existing (2022) conditions are presented in Section 3 Existing (2022) Traffic Analysis. The traffic signal warrant analyses for future conditions are presented in Section 5 E+P Traffic Analysis, and Section 6 Opening Year Cumulative (2025) Traffic Analysis of this report.

It is important to note that a signal warrant defines the minimum condition under which the installation of a traffic signal might be warranted. Meeting this threshold condition does not require that a traffic control signal be installed at a particular location, but rather, that other traffic factors and conditions be evaluated in order to determine whether the signal is truly justified. It should also be noted that signal warrants do not necessarily correlate with LOS. An intersection may satisfy a signal warrant condition and operate at or above acceptable LOS or operate below acceptable LOS and not meet a signal warrant.

2.4 ROADWAY SEGMENT CAPACITY ANALYSIS

Roadway segment operations have been evaluated using the LOS E daily roadway segment capacities for each type of roadway as summarized in Table 2-4.

TABLE 2-4: ROADWAY SEGMENT CAPACITIES

		Maximum Two-Way Average Daily Traffic (ADT) Volume[1]		
Roadway Classification	# of Lanes	LOS C	LOS D	LOS E
Collector	2	10,400	11,700	13,000
Secondary	4	20,700	23,300	25,900
Major	4	27,300	30,700	34,100
Arterial	2	14,400	16,200	18,000
Arterial	4	28,700	32,300	35,900
Urban Arterial	4	28,700	32,300	35,900
Urban Arterial	6	43,100	48,500	53,900
Urban Arterial	8	57,400	64,600	71,800

[1] Source: County of Riverside Traffic Study Guidelines, Appendix D, dated December 2020.

These roadway capacities are "rule of thumb" estimates for planning purposes and are affected by such factors as intersections (spacing, configuration and control features), degree of access control, roadway grades, design geometrics (horizontal and vertical alignment standards), sight distance, vehicle mix (truck and bus traffic) and pedestrian bicycle traffic. As such, where the average daily volume (ADT) based roadway segment analysis indicates a deficiency (unacceptable LOS), a review of the more detailed peak hour intersection analysis and progression analysis are undertaken. The more detailed peak hour intersection analysis explicitly accounts for factors that affect roadway capacity. Therefore, for the purposes of this analysis, roadway segment widening is typically only recommended if the peak hour intersection analysis indicates the need for additional through lanes.

2.5 QUEUING ANALYSIS

Consistent with Caltrans requirements, the 95th percentile queuing of vehicles has been assessed at the off-ramps to determine potential queuing deficiencies at the freeway ramp intersections at the I-215 Freeway at the McCall Boulevard interchange. Specifically, the off-ramp queuing analysis is utilized to identify any potential queuing and "spill back" onto the I-215 Freeway mainline from the off-ramps.

The traffic progression analysis tool and HCM intersection analysis program, Synchro, has been used to assess the potential deficiencies/needs of the intersections with traffic added from the proposed Project. Storage (turn-pocket) length recommendations at the ramps have been based upon the 95th percentile queue resulting from the Synchro progression analysis. The footnote from the Synchro output sheets indicates if the 95th percentile cycle exceeds capacity. Traffic is simulated for two complete cycles of the 95th percentile traffic in Synchro in order to account for the effects of spillover between cycles. In practice, the 95th percentile queue shown will rarely be exceeded and the queues shown with the footnote are acceptable for the design of storage bays. The 95th percentile queue is derived from the average queue plus 1.65 standard deviations. The 95th percentile queue is not necessarily ever observed it is simply based on statistical calculations.

2.6 MINIMUM ACCEPTABLE LEVELS OF SERVICE (LOS)

2.6.1 CITY OF MENIFEE

Per Policy C-1.2 of the City of Menifee General Plan, the following LOS will be utilized for study area intersections located within the City:

The City of Menifee has identified LOS D as the threshold for acceptable operating conditions for intersections except at constrained intersections and roadway segments in close proximity to I-215, where LOS E is accepted during peak hours.

Therefore, any intersection operating at LOS E or F will be considered deficient for the purposes of this analysis. (6)

2.6.2 CALTRANS

Senate Bill 743 (SB 743), approved in 2013, endeavors to change the way transportation impacts will be determined according to the California Environmental Quality Act (CEQA). The Office of Planning and Research (OPR) has recommended the use of vehicle miles traveled (VMT) as the replacement for

automobile delay-based LOS. Caltrans acknowledges automobile delay will no longer be considered a CEQA impact for development projects and will use VMT as the metric for determining impacts on the State Highway System (SHS). However, LOS D has been utilized as the target LOS for Caltrans facilities, consistent with the County of Riverside.

2.7 DEFICIENCY CRITERIA

This section outlines the methodology used in this analysis related to identifying circulation system deficiencies. The LOS-based traffic study will be utilized for conditions of approval and to demonstrate consistency with the General Plan goals/policies. To determine whether the addition of project-related traffic at a study intersection would result in a deficiency, the following thresholds will be utilized:

- If the pre-Project condition at an intersection or roadway segment is at or better than the minimum acceptable LOS (LOS D, or LOS E at constrained locations near I-215) and the addition of project trips results in unacceptable LOS (LOS E or LOS F), a project-related traffic deficiency is forecast to occur. This type of deficiency would be considered project-specific in which the project would be fully responsible for.
- If the pre-Project condition is LOS E or F and the Project adds 50 or more peak hour trips to the intersection or roadway segment, then a cumulative traffic deficiency is forecast to occur. This type of deficiency would be considered a "cumulative" deficiency in which the project would be required to contribute a fair share payment toward mitigating the impact.

2.8 PROJECT FAIR SHARE CALCULATION METHODOLOGY

Improvements found to be included in the County TUMF and/or City DIF programs will be identified as such. For improvements that do not appear to be in either of the pre-existing fee programs, a fair share contribution based on the Project's proportional share may be imposed in order to address the Project's share of deficiencies in lieu of construction. It should be noted that fair share calculations are for informational purposes only and the City Traffic Engineer will determine the appropriate improvements to be implemented by a project (to be identified in the conditions of approval). The Project's fair share cost of improvements would be determined based on the following equations, which are the ratio of Project traffic to new traffic, where new traffic is total future traffic less existing baseline traffic:

Project Fair Share % at Intersections = Project Traffic / (Opening Year Cumulative (2025) Total Traffic – Existing (2022) Traffic)

Project Fair Share % on Roadway Segments = Project ADT / (Opening Year Cumulative (2025) ADT – Existing ADT)

3 AREA CONDITIONS

This section provides a summary of the existing circulation network, the City of Menifee General Plan Circulation Network, and a review of existing peak hour intersection operations, traffic signal warrant, roadway segment, and freeway off-ramp queuing analyses.

3.1 EXISTING CIRCULATION NETWORK

Pursuant to the scoping agreement with City of Menifee staff (Appendix 1.1), the study area includes a total of 13 existing and future intersections as shown previously on Exhibit 1-2. Exhibit 3-1 illustrates the study area intersections located near the proposed Project and identifies the number of through traffic lanes for existing roadways and intersection traffic controls.

3.2 CITY OF MENIFEE GENERAL PLAN CIRCULATION ELEMENT

As noted previously, the Project site is located within the City of Menifee. The roadway classifications and planned (ultimate) roadway cross-sections of the major roadways within the study area, as identified on City of Menifee General Plan Circulation Element, are described subsequently. Exhibit 3-2 shows the City of Menifee General Plan Circulation Element and Exhibit 3-3 illustrates the City of Menifee General Plan roadway cross-sections.

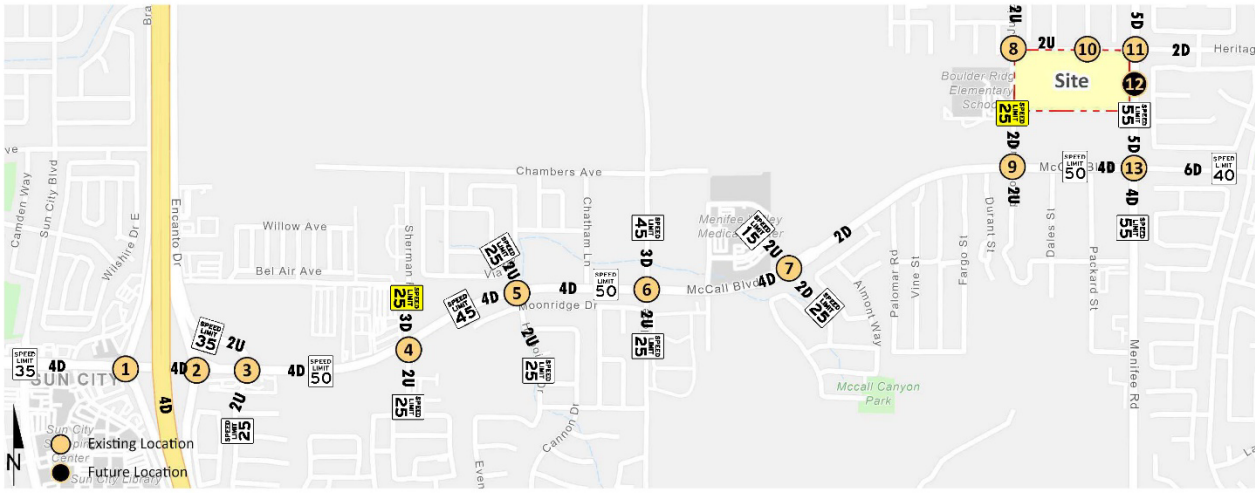
Urban Arterials are six-lane divided roadways (typically divided by a raised median or painted two-way turn-lane) with a 152-foot right-of-way and a 110-to-126-foot curb-to-curb measurement. These roadways serve both regional through-traffic and inter-city traffic and typically direct traffic onto and off-of the freeways. The following study area roadways within the City of Menifee are classified as an Urban Arterial:

- McCall Boulevard
- Menifee Road

Major Roadways are four-lane roadways and may include a painted median. The Major cross-section has been modified from the County cross-section to provide more flexibility for parkway widths. Shoulders may accommodate exclusive bike lanes or shared neighborhood electric vehicles/bike lanes. Sidewalks may be curb adjacent or separated from the roadway by a landscaped parkway. These roadways typically have a 100-to-118-foot right-of-way and a 76-foot curb-to-curb measurement. These roadways typically direct traffic through major development areas. The following study area roadways within the City of Menifee are classified as a Major Roadway:

- Encanto Drive (north of McCall Boulevard)
- Sherman Road (north of McCall Boulevard)
- Antelope Road (north of McCall Boulevard)

EXHIBIT 3-1: EXISTING NUMBER OF THROUGH LANES AND INTERSECTION CONTROLS



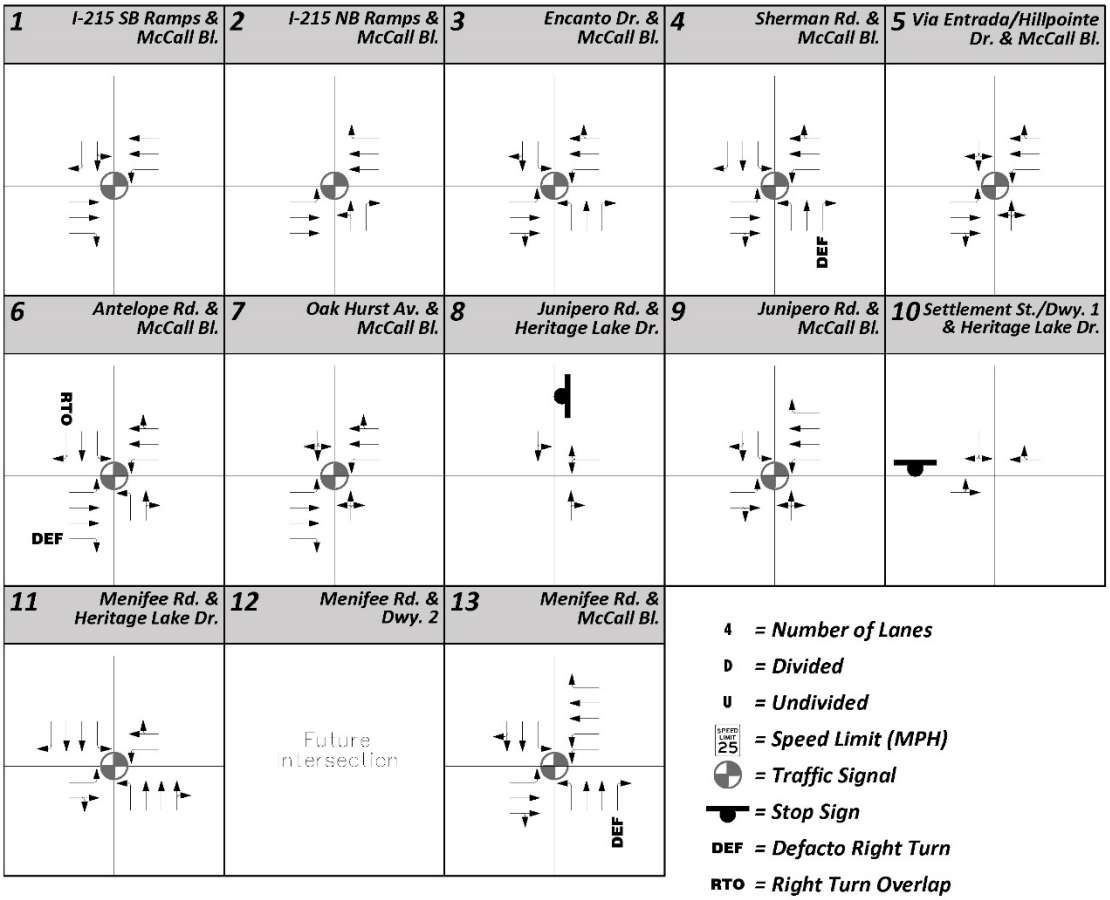


EXHIBIT 3-2: CITY OF MENIFEE GENERAL PLAN CIRCULATION ELEMENT

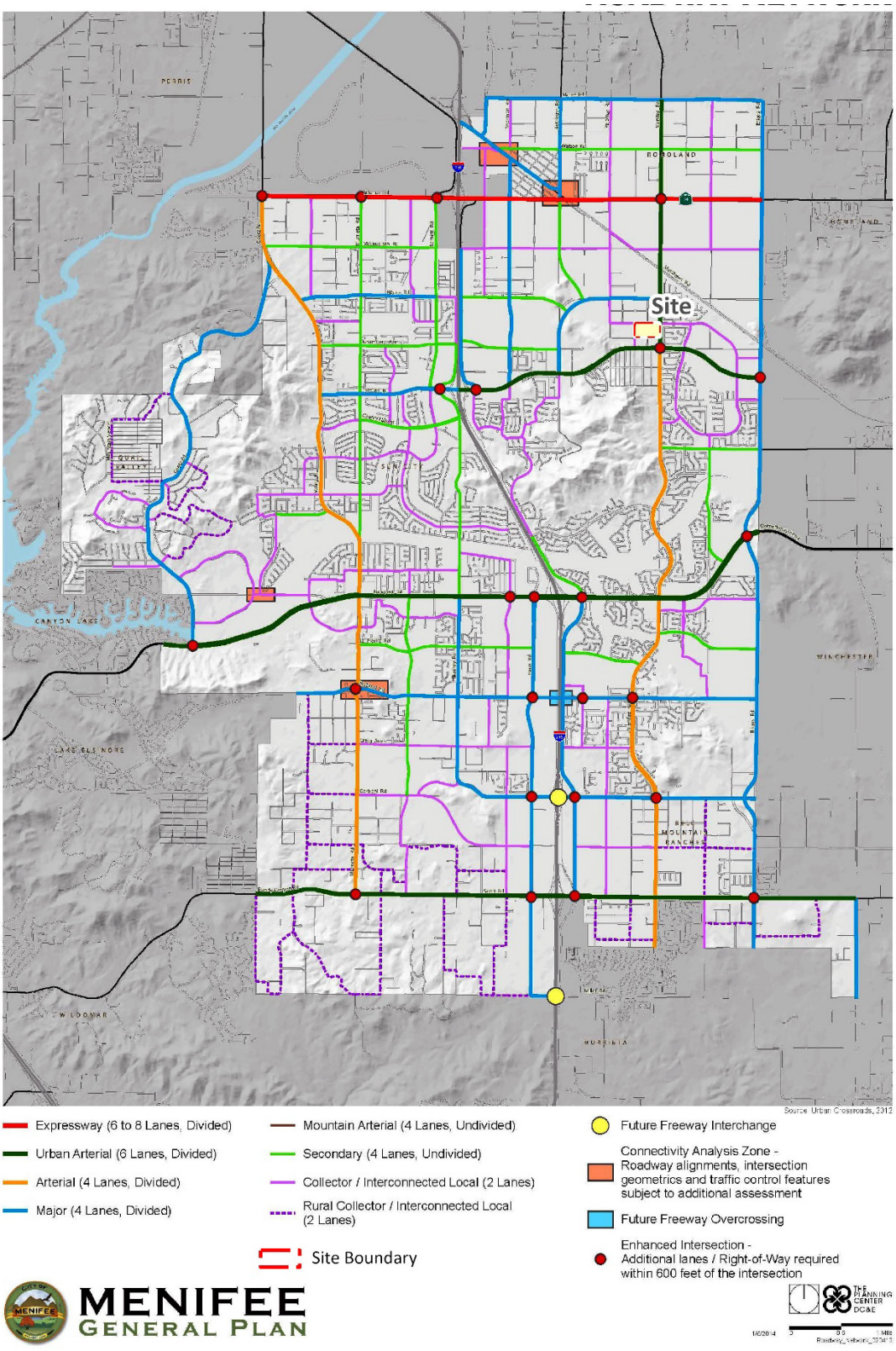
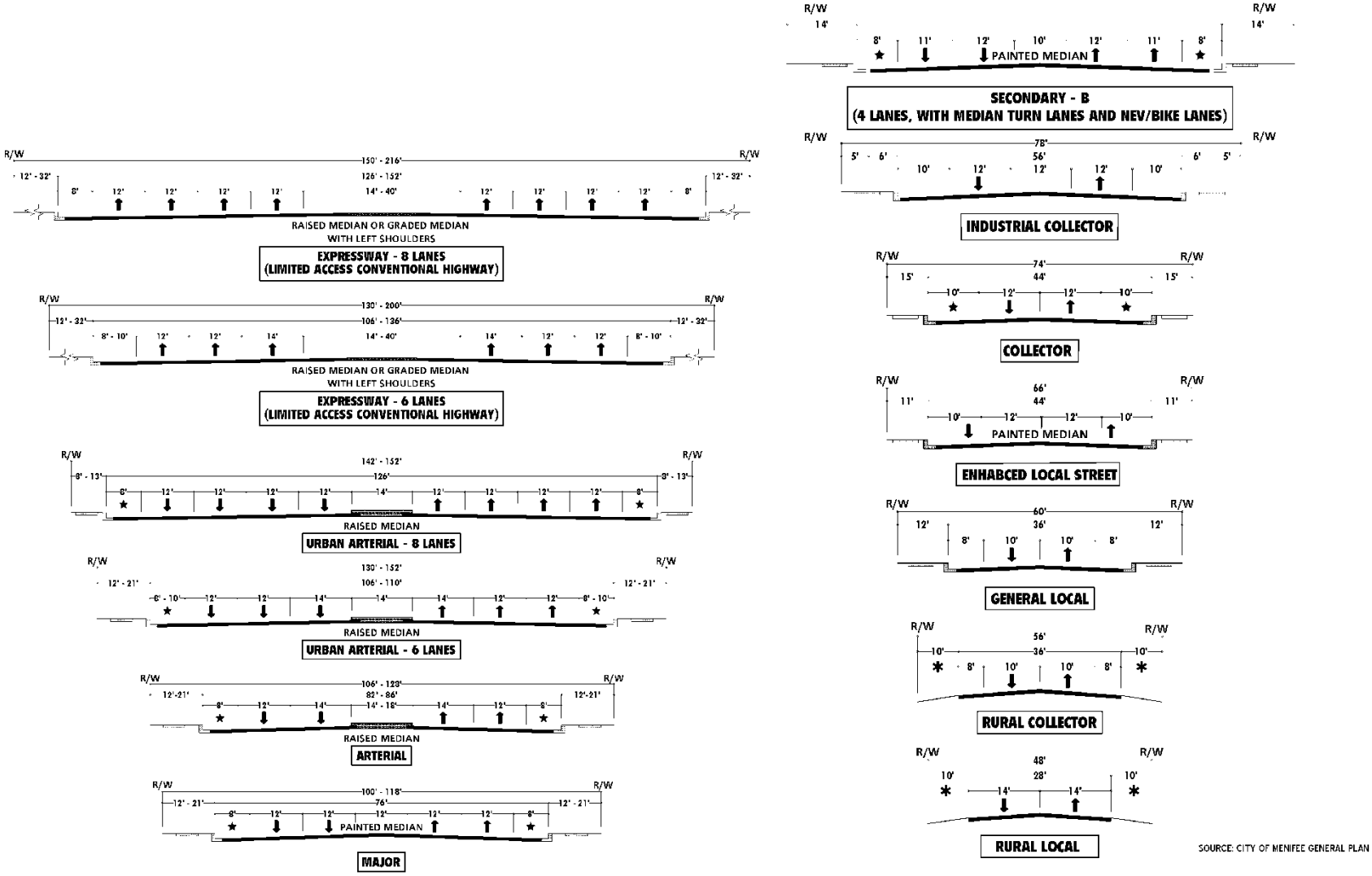


EXHIBIT 3-3: CITY OF MENIFEE GENERAL PLAN ROADWAY CROSS-SECTIONS



SOURCE: CITY OF MENIFEE GENERAL PLAN

Collector Roadways are two-lane, low-to-moderate speed roadways. They provide an alternative to traveling on higher capacity/speed roadways to navigate through the City. These roadways typically have a 74-foot right-of-way and a 44-foot curb-to-curb measurement. These roadways typically direct traffic through major development areas. The following study area roadways within the City of Menifee are classified as a Collector:

- Encanto Drive (south of McCall Boulevard)
- Sherman Road (south of McCall Boulevard)
- Antelope Road (south of McCall Boulevard)
- Junipero Road
- Heritage Lake Drive

3.3 BICYCLE, EQUESTRIAN, & PEDESTRIAN FACILITIES

Field observations indicate nominal pedestrian and bicycle activity within the study area. As shown on Exhibit 3-4, pedestrian facilities are built out along Menifee Road and Heritage Lake Drive with the exception of areas adjacent to undeveloped land (including the Project's frontage). Sidewalks and crosswalks exist in other locations of the study area adjacent to existing development. The City of Menifee bike networks are shown on Exhibit 3-5. As shown on Exhibit 3-5, there are Class II (signed and striped, on-street) bike lanes are proposed along Menifee Road near the vicinity of the Project and along McCall Boulevard. A Class III (signed but unstriped, on-street) bike routes are identified along Junipero Road and Heritage Lake Drive adjacent to the Project. Currently bike lanes are striped along portions of Menifee Road along the east side adjacent to the Project. The Project would implement Class II bike lanes along their frontage of Menifee Road consistent with the City standards. Heritage Lake Drive and Junipero Road should be signed as a Class III bike route.

3.4 TRANSIT SERVICE

The City is currently served by Riverside Transit Agency (RTA). The transit services within the City are illustrated on Exhibit 3-6. As shown on Exhibit 3-6, there are no RTA routes that currently serve the study area intersections in close proximity to the Project. However, Menifee Road is identified as a potential future RTA transit route in addition to potential future rail service to the northeast of the Project per the City's General Plan. Transit service is reviewed and updated by RTA periodically to address ridership, budget, and community demand needs. Changes in land use can affect these periodic adjustments which may lead to either enhanced or reduced service where appropriate.

EXHIBIT 3-4: EXISTING PEDESTRIAN FACILITIES

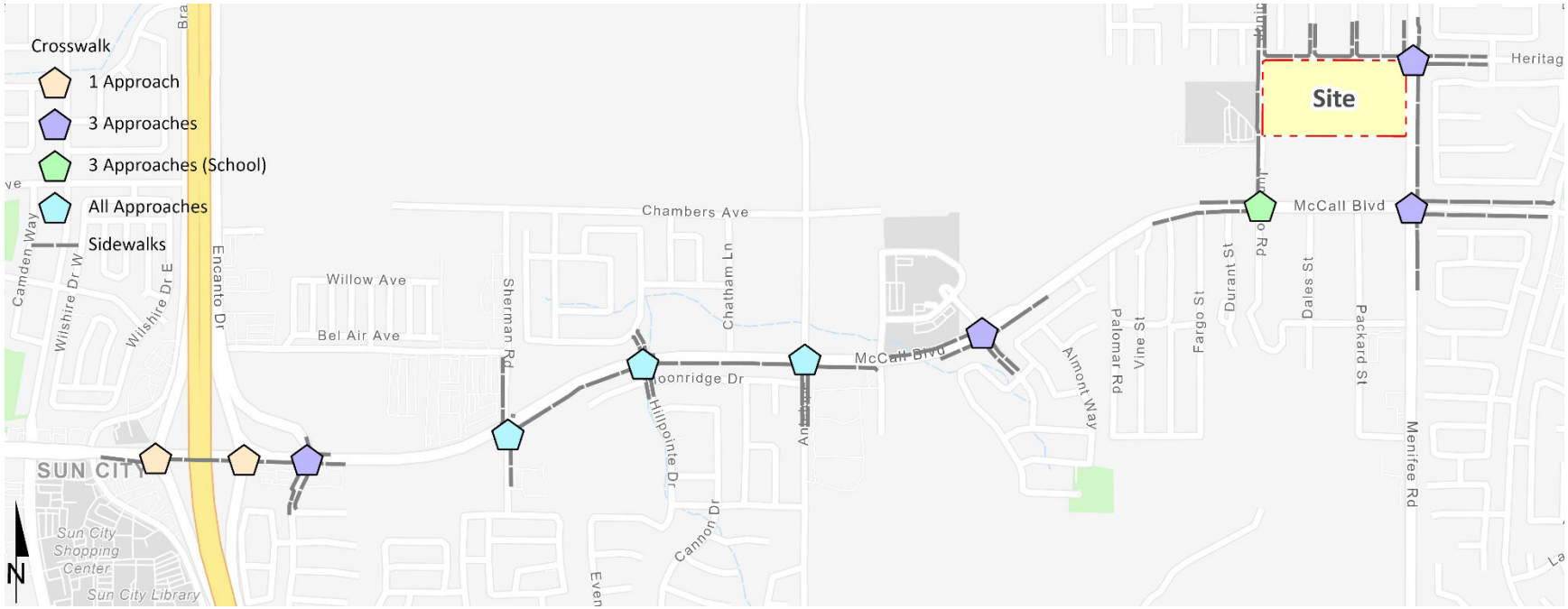


EXHIBIT 3-5: CITY OF MENIFEE BIKEWAY AND COMMUNITY PEDESTRIAN NETWORK

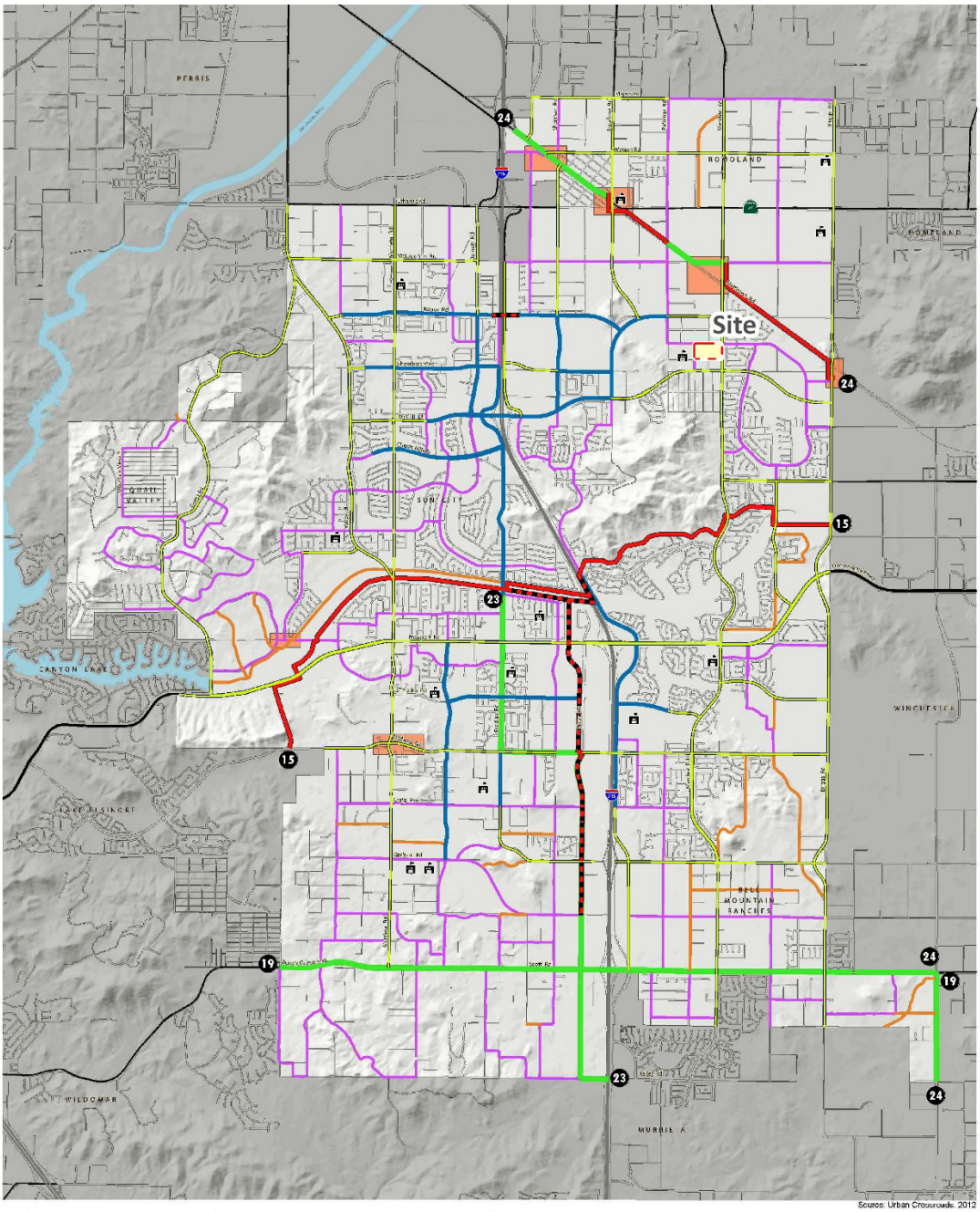
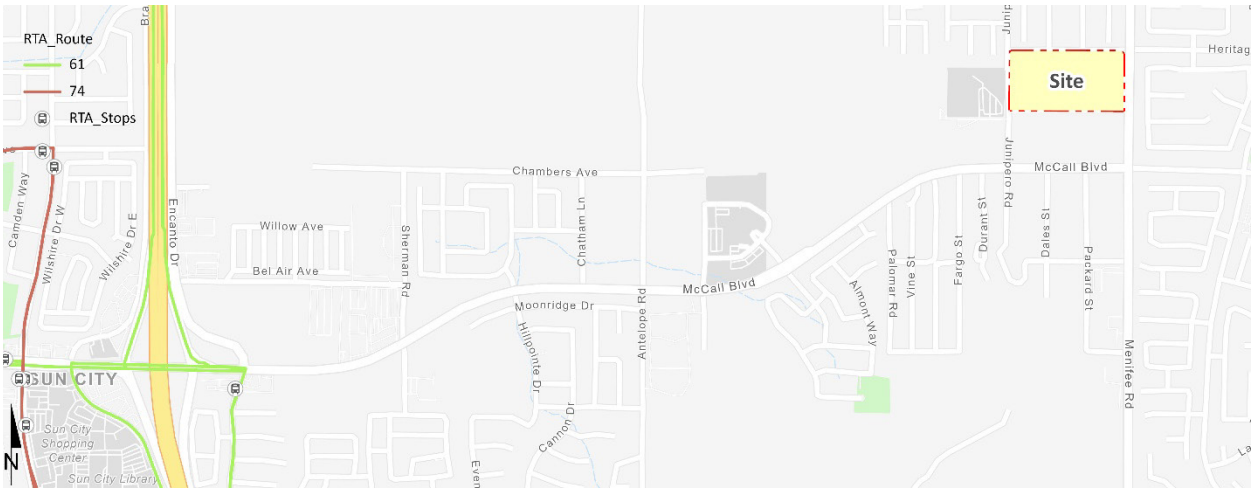


EXHIBIT 3-6: EXISTING TRANSIT ROUTES



3.5 EXISTING (2022) TRAFFIC COUNTS

The intersection LOS analysis is based on the traffic volumes observed during the peak hour conditions using traffic count data collected in September 2022. The following peak hours were selected for analysis:

- Weekday AM Peak Hour (peak hour between 7:00 AM and 9:00 AM)
- Weekday PM Peak Hour (peak hour between 4:00 PM and 6:00 PM)

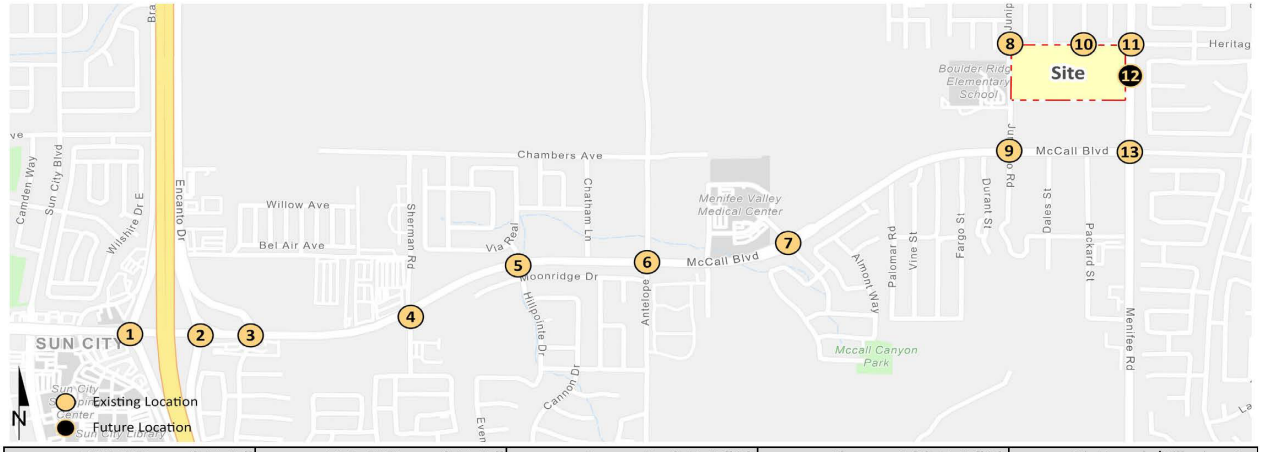
Local schools are back in session with in-person instruction, as such, no additional adjustments were made to the traffic counts for the purposes of establishing the existing baseline (other than those needed for volume balancing between closely spaced intersections). The 2022 weekday AM and weekday PM peak hour count data is representative of typical weekday peak hour traffic conditions in the study area. There were no observations made in the field that would indicate atypical traffic conditions on the count dates, such as construction activity or detour routes and near-by schools were in session and operating on normal schedules. The raw manual peak hour turning movement traffic count data sheets are included in Appendix 3.1.

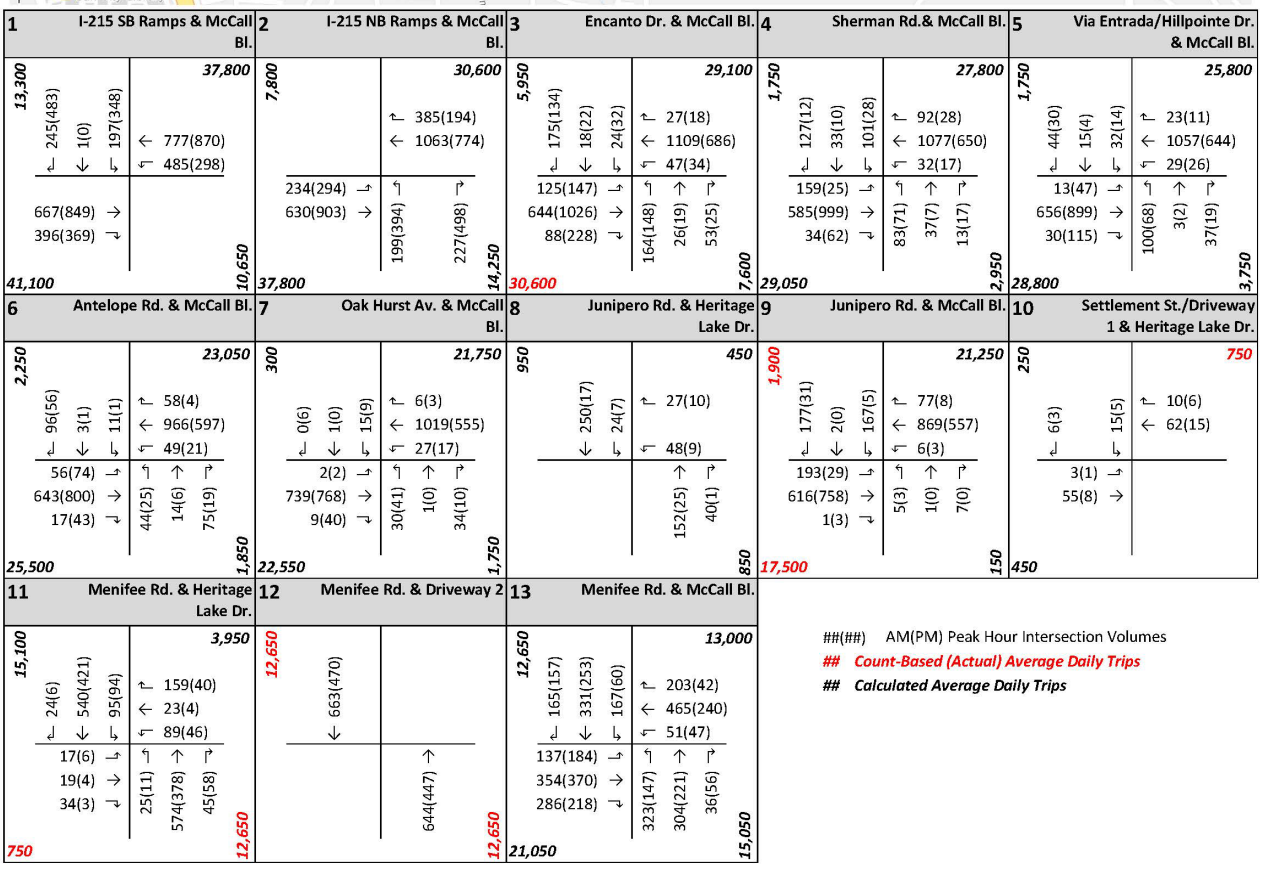
Existing weekday ADT volumes are shown on Exhibit 3-7. Where actual 24-hour tube count data was not available, Existing ADT volumes were based upon factored intersection peak hour counts collected by Urban Crossroads, Inc. using the following formula for each intersection leg:

Weekday PM Peak Hour (Approach Volume + Exit Volume) x 15.98 = Leg Volume

A comparison of the PM peak hour and daily traffic volumes of various roadway segments within the study area indicated that the peak-to-daily relationship is approximately 6.3 percent. As such, the above equation utilizing a factor of 15.98 estimates the ADT volumes on the study area roadway segments assuming a peak-to-daily relationship of approximately 6.3 percent (i.e., 1/0.063 = 15.98) and was assumed to sufficiently estimate average daily traffic (ADT) volumes for planning-level analyses. Existing weekday AM and weekday PM peak hour intersection volumes are also shown on Exhibit 3-7.

EXHIBIT 3-7: EXISTING (2022) TRAFFIC VOLUMES





3.6 INTERSECTION OPERATIONS ANALYSIS

Existing peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2.2 Intersection Capacity Analysis of this report. The intersection operations analysis results are summarized on Table 3-1, which indicates that all of the study area intersections are currently operating at an unacceptable LOS during the peak hours. The intersection operations analysis worksheets are included in Appendix 3.2 of this TA.

TABLE 3-1: INTERSECTION ANALYSIS FOR EXISTING (2022) CONDITIONS

#	Intersection	Traffic Control[1]	Delay[2] (secs.) AM	Delay[2] (secs.) PM	Level of Service AM	Level of Service PM
1	I-215 SB Ramps & McCall Bl.	TS	22.1	24.8	C	C
2	I-215 NB Ramps & McCall Bl.	TS	21.2	28.1	C	C
3	Encanto Dr. & McCall Bl.	TS	18.3	14.7	B	B
4	Sherman Rd.& McCall Bl.	TS	25.2	12.3	C	B
5	Via Entrada/Hillpointe Dr. & McCall Bl.	TS	11.1	10.4	B	B
6	Antelope Rd. & McCall Bl.	TS	16.0	8.0	B	B
7	Oak Hurst Av. & McCall Bl.	TS	8.8	11.9	A	B
8	Junipero Rd. & Heritage Lake Dr.	CSS	15.6	8.8	C	A
9	Junipero Rd. & McCall Bl.	TS	17.0	7.5	B	A
10	Settlement St./Driveway 1 & Heritage Lake Dr.	CSS	9.3	8.7	A	A
11	Menifee Rd. & Heritage Lake Dr.	TS	16.7	11.2	B	B
12	Menifee Rd. & Driveway 2		Future Intersection			
13	Menifee Rd. & McCall Bl.	TS	38.1	21.8	D	C

[1] TS = Traffic Signal; CSS = Cross-Street Stop

[2] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

3.7 EXISTING (2022) TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants for Existing traffic conditions are based on existing peak hour intersection turning volumes. There are no unsignalized study area intersections that currently meet a peak hour volume-based traffic signal warrant for Existing (2022) traffic conditions (see Appendix 3.3).

3.8 EXISTING (2021) ROADWAY SEGMENT CAPACITY ANALYSIS

The County's Guidelines have been used to obtain roadway volume capacity values presented previously in Table 2-4 as the City's current guidelines do not include any roadway capacities. The roadway segment capacities are approximate figures only and are used at the General Plan level to assist in determining the roadway functional classification (number of through lanes) needed to meet traffic demand. Table 3-2 provides a summary of the Existing (2022) conditions roadway segment

capacity analysis based on the Roadway Segment Capacity Thresholds identified previously in Table 2-4. As shown on Table 3-2, the following roadway segment currently exceeds the existing capacity:

- McCall Bl. from Oak Hurst Av. to Junipero Rd. (#3) – LOS E

TABLE 3-2: ROADWAY SEGMENT CAPACITY ANALYSIS FOR EXISTING (2022) CONDITIONS

#	Roadway	Segment Limits	GP Classification	Roadway Section	LOS E Capacity[1]	Existing 2022	V/C[2]	LOS[3]
1	McCall Bl.	I-215 Freeway to Encanto Dr.	Urban Arterial	4D	35,900	30,594	0.85	D
2	McCall Bl.	Encanto Dr. to Sherman Rd.	Urban Arterial	4D	35,900	29,102	0.81	D
3	McCall Bl.	Oak Hurst Av. to Junipero Rd.	Urban Arterial	2D	17,950	**17,523**	**0.98**	**E**
4	McCall Bl.	Junipero Rd. to Menifee Rd.	Urban Arterial	4D	35,900	21,271	0.59	A
5	Junipero Rd.	Heritage Lake Dr. to McCall Bl.	Collector	2U	13,000	1,904	0.15	A
6	Heritage Lake Dr.	West of Menifee Rd.	Collector	2U	13,000	744	0.06	A
7	Menifee Rd.	South of Heritage Lake Dr.	Urban Arterial	4D	35,900	12,634	0.35	A

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] These maximum roadway capacities have been derived from the following source: County of Riverside Traffic Study Guidelines

[2] V/C = Volume to Capacity Ratio

[3] LOS = Level of Service

3.9 EXISTING (2022) OFF-RAMP QUEUING ANALYSIS

A queuing analysis was performed for the off-ramps at the I-215 Freeway and McCall Boulevard interchange. Queuing analysis findings are presented in Table 3-3. It is important to note that off-ramp lengths are consistent with the measured distance between the intersection and the freeway mainline. As shown in Table 3-3, there are no movements that are currently experiencing queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows. Worksheets for Existing (2022) traffic conditions off-ramp queuing analysis are provided in Appendix 3.4.

TABLE 3-3: PEAK HOUR OFF-RAMP QUEUING FOR EXISTING (2022) CONDITIONS

Intersection	Movement	Available Stacking Distance (Feet)	95th Percentile Queue (Feet)		Acceptable? [1]	
			AM Peak Hour	PM Peak Hour	AM	PM
I-215 SB Ramps & McCall Bl. (#1)	SBL/T	1,415	197	287	Yes	Yes
	SBR	455	65	373 [2]	Yes	Yes
I-215 NB Ramps & McCall Bl. (#2)	NBL/T	1,820	199	324	Yes	Yes
	NBR	240	63	411 [2,3]	Yes	Yes

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 25 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

[2] 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

[3] Although 95th percentile queue is anticipated to exceed the available storage for the turn lane, the adjacent through lane has sufficient storage to accommodate any spillover without spilling back and affecting the I-215 Freeway mainline.

4 PROJECTED FUTURE TRAFFIC

The Project is proposed to consist of the development of 240 market-rate apartments (multifamily (low-rise, 2-3 floors) residential). Vehicular access will be provided via a primary access on Heritage Lake Drive (via full access driveway) and a secondary right-in/right-out driveway on Menifee Road. Regional access to the Project site is accommodated from the I-215 Freeway via McCall Boulevard.

4.1 PROJECT TRIP GENERATION

Trip generation represents the amount of traffic which is both attracted to and produced by a development. Determining traffic generation for a specific project is therefore based upon forecasting the amount of traffic that is expected to be both attracted to and produced by the specific land uses being proposed for a given development. In order to develop the traffic characteristics of the proposed project, trip-generation statistics published in the ITE Trip Generation Manual (11th Edition, 2021). (2) Trip generation rates for the proposed uses are summarized on Table 4-1. A summary of the proposed Project trip generation is also shown on Table 4-1. As shown in Table 4-1, the proposed Project is anticipated to generate 1,618 two-way trips per day with 96 AM peak hour trips and 122 PM peak hour trips.

TABLE 4-1: PROJECT TRIP GENERATION SUMMARY

Land Use[1]	ITE LU Code	Units[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Trip Generation Rates:									
Multifamily (Low-Rise) Residential	220	DU	0.10	0.30	0.40	0.32	0.19	0.51	6.74

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 11th Edition (2021).

[2] DU = Dwelling Units

Land Use	Quantity	Units[1]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Trip Generation Summary:									
Village at Junipero	240	DU	23	73	96	77	45	122	1,618

[1] DU = Dwelling Units

4.2 PROJECT TRIP DISTRIBUTION

The Project trip distribution represents the directional orientation of traffic to and from the Project site. Trip distribution is the process of identifying the probable destinations, directions or traffic routes that will be utilized by Project traffic. The potential interaction between the planned land uses and surrounding regional access routes are considered to identify the route where the Project traffic would distribute. The Project trip distribution was developed based on anticipated travel patterns to and from the Project site and are consistent with other similar projects that have been reviewed and approved by City of Menifee staff. Exhibit 4-1 illustrates the trip distribution patterns for the Project, which is part of the TA scoping process (see Appendix 1.1).

4.3 MODAL SPLIT

The potential for Project trips to be reduced by the use of public transit, walking or bicycling have not been included as part of the Project's estimated trip generation. Essentially, the Project's traffic projections are "conservative" in that these alternative travel modes would reduce the forecasted traffic volumes.

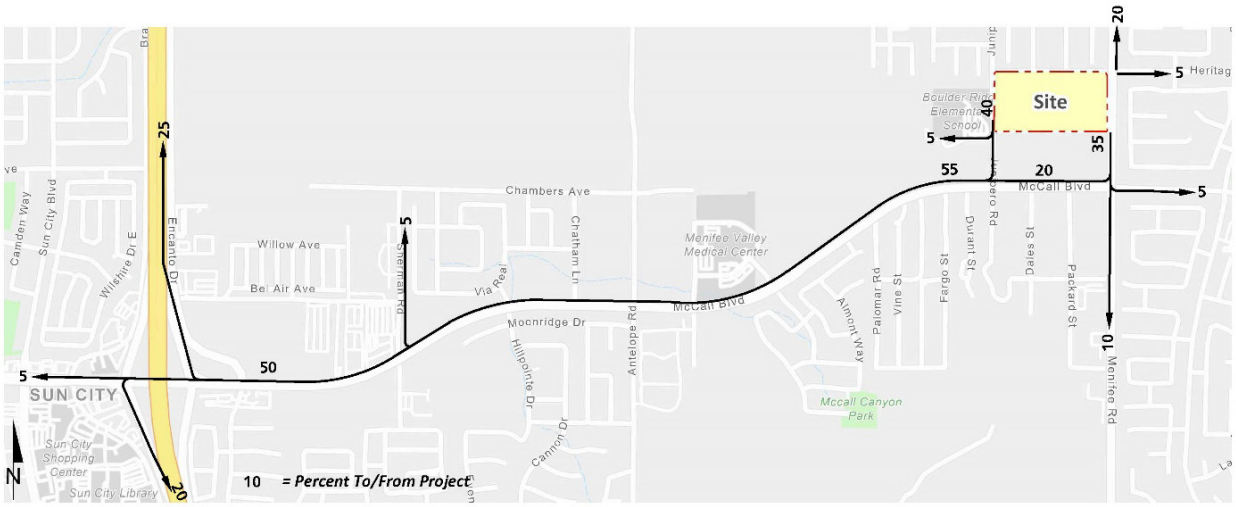
4.4 PROJECT TRIP ASSIGNMENT

The assignment of traffic from the Project area to the adjoining roadway system is based upon the Project trip generation, trip distribution, and the arterial highway and local street system improvements that would be in place by the time of initial occupancy of the Project. Based on the identified Project traffic generation and trip distribution patterns, Project weekday ADT and weekday peak hour intersection turning movement volumes are shown on Exhibit 4-2.

4.5 BACKGROUND TRAFFIC

Future year traffic forecasts have been based upon background (ambient) growth at 2% per year for 2025 traffic conditions. The total ambient growth is 6.12% for 2025 traffic conditions (compounded growth of 2 percent per year over 3 years or $1.02^{3\ years}$). The ambient growth factor is intended to approximate regional traffic growth. This ambient growth rate is added to existing traffic volumes to account for area-wide growth not reflected by cumulative development projects. Ambient growth has been added to daily and peak hour traffic volumes on surrounding roadways, in addition to traffic generated by the development of future projects that have been approved but not yet built and/or for which development applications have been filed and are under consideration by governing agencies. Opening Year Cumulative (2025) traffic volumes are provided in Section 6 of this TA. The traffic generated by the proposed Project was then manually added to the base volume to determine Opening Year Cumulative "With Project" forecasts.

EXHIBIT 4-1: PROJECT TRIP DISTRIBUTION



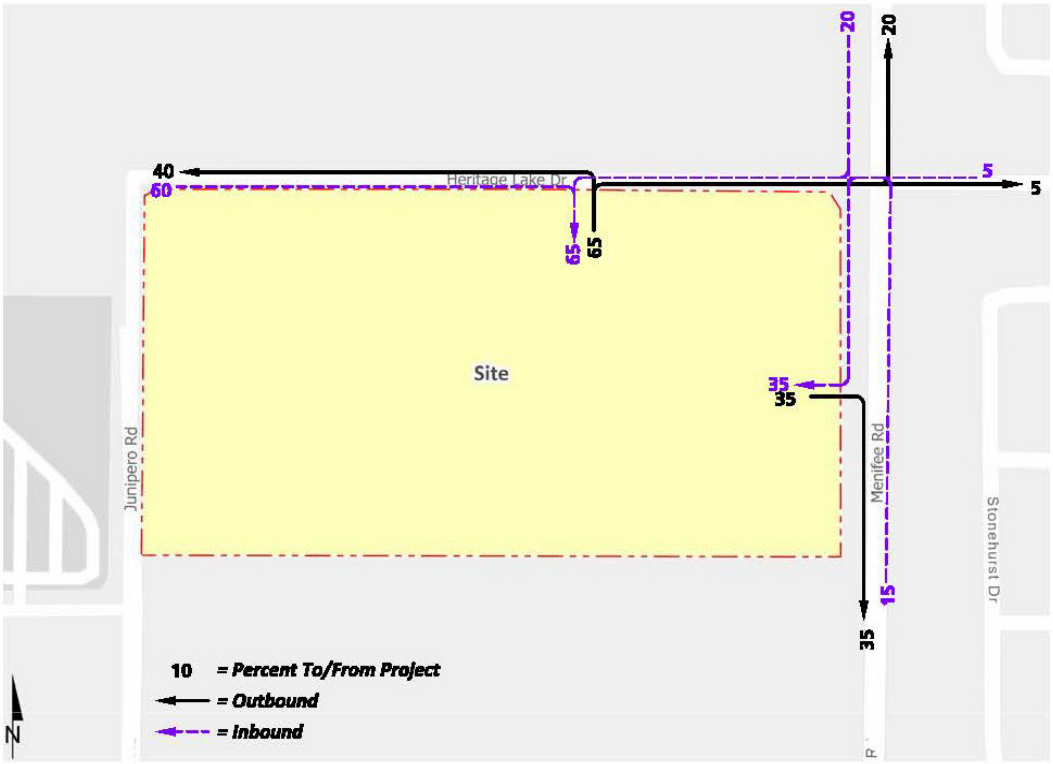
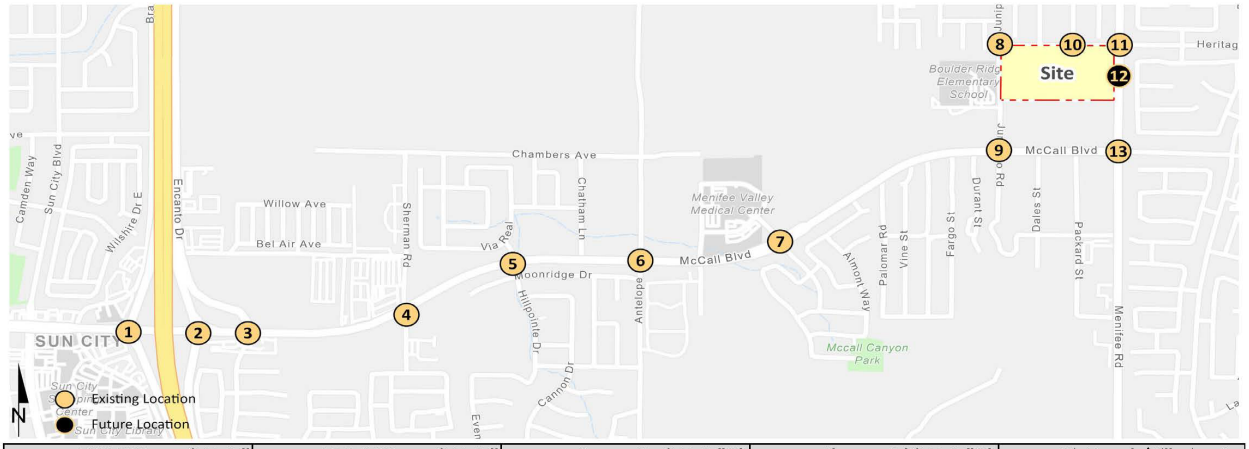


EXHIBIT 4-2: PROJECT ONLY TRAFFIC VOLUMES



1 I-215 SB Ramps & McCall Bl.	2 I-215 NB Ramps & McCall Bl.	3 Encanto Dr. & McCall Bl.	4 Sherman Rd.& McCall Bl.	5 Via Entrada/Hillpointe Dr. & McCall Bl.
200 / 450 6(19) ↳ ← 4(2) ↰ 15(9) 1(4) → 100 / 150	200 / 800 ↰ 18(11) ← 18(11) 7(23) → 5(15) ↱ 450 / 150	800 / 800 ← 37(23) 12(39) → 800	100 / 900 1(4) ↳ ↰ 4(2) ← 37(23) 12(39) → 800	900 ← 40(25) 13(42) → 900
6 Antelope Rd. & McCall Bl.	**7 Oak Hurst Av. & McCall Bl.**	**8 Junipero Rd. & Heritage Lake Dr.**	**9 Junipero Rd. & McCall Bl.**	**10 Settlement St./Driveway 1 & Heritage Lake Dr.**
900 ← 40(25) 13(42) → 900	900 ← 40(25) 13(42) → 900	800 ↰ 29(18) 14(46) ↱ 800	750 / 150 26(16) ↳ ← 15(9) 13(42) ↴ 900	400 ↰ 6(19) 14(46) ↴ 29(18) → 29(18) ↱ 18(11) ↱ 800 / 1,200
11 Menifee Rd. & Heritage Lake Dr.	**12 Menifee Rd. & Driveway 2**	**13 Menifee Rd. & McCall Bl.**		
300 / 100 5(15) ↳ ← 1(4) 15(9) → 4(2) → 3(12) ↱ 550 / 100	250 / 100 3(12) ↳ 26(16) ↴ 3(12) → 400 / 400	400 / 100 15(9) ↳ 7(5) ← 4(2) ↳ ↰ 1(4) 2(8) → 150 / 150		

##(##) AM(PM) Peak Hour Intersection Volumes
Calculated Average Daily Trips

4.6 CUMULATIVE DEVELOPMENT TRAFFIC

A cumulative project list was developed for the purposes of this analysis through consultation with planning and engineering staff from the City of Menifee. The cumulative project list includes known and foreseeable projects that are anticipated to contribute traffic to the study area intersections. Where applicable, cumulative projects anticipated to contribute measurable traffic (i.e., 50 or more peak hour trips) to study area intersections have been manually added to the study area network to generate Opening Year Cumulative (2025) forecasts. In other words, this list of cumulative development projects has been reviewed to determine which projects would likely contribute measurable traffic through the study area intersections (e.g., those cumulative projects in close proximity to the proposed Project). For the purposes of this analysis, the cumulative projects that were determined to affect one or more of the study area intersections are shown on Exhibit 4-3, listed in Table 4-2, and have been considered for inclusion.

Although it is unlikely that all of these cumulative projects would be fully built and occupied by Year 2025, they have been included in an effort to conduct a conservative analysis and overstate as opposed to understate potential traffic deficiencies. Any other cumulative projects located beyond the cumulative study area that are not expected to contribute measurable traffic to study area intersections have not been included since the traffic would dissipate due to the distance from the Project site and study area intersections. Any additional traffic generated by other projects not on the cumulative projects list is likely accounted for through background ambient growth factors that have been applied to the peak hour volumes at study area intersections as discussed in Section 4.5 Background Traffic. Cumulative Only ADT and peak hour intersection turning movement volumes are shown on Exhibit 4-4.

4.7 NEAR-TERM TRAFFIC CONDITIONS

The "buildup" approach combines existing traffic counts with a background ambient growth factor to forecast the near-term 2025 traffic conditions. An ambient growth factor of 2.0% per year, compounded annually, accounts for background (area-wide) traffic increases that occur over time up to the years 2025 from the year 2022. Traffic volumes generated by cumulative development projects are then added to assess the Opening Year Cumulative (2025) traffic conditions. Lastly, Project traffic is added to assess "With Project" traffic conditions. The 2025 roadway network is similar to the existing conditions roadway network with the exception of intersections proposed to be developed by the Project. The near-term traffic analysis includes the following traffic conditions, with the various traffic components:

- Opening Year Cumulative (2025) Without Project
    - Existing 2022 counts
    - Ambient growth traffic (6.12%)
    - Cumulative Development Project traffic
- Opening Year Cumulative (2025) With Project
    - Existing 2022 counts
    - Ambient growth traffic (6.12%)
    - Cumulative Development Project traffic
    - Project traffic

TABLE 4-2: CUMULATIVE DEVELOPMENT LAND USE SUMMARY

No.	Project Name	Land Use	Quantity[1]	
City of Menifee:				
M1	PM 2018-118 (Newport and Menifee Commercial)	Shopping Center	138.091	TSF
M2	TTM No. 38346	Multifamily Residential	162	DU
M3	Menifee Valley Specific Plan	Single Family Residential	1,711	DU
		Mixed-Use	590	Acres
M4	PP 2016-124	Fast-food w/ Drive-Thru	6.200	TSF
		Retail	1.000	TSF
		Gas Station & Market / Car Wash	12	VFP
M5	Legado Specific Plan	Single Family Residential	1,061	DU
		Community Center	10	TSF
		Sprots Park	11.23	TSF
		Shopping Center	225	TSF
M6A	TR 32314	Single Family Residential	33	DU
M6B	Cimarron Ridge	Single Family Residential	756	DU
M7	TR 2016-285, SP 2016-286, GPA 2016-287, CZ 2016-288	Single Family Residential	305	DU
M8	TR 28859-1	Single Family Residential	161	DU
M9	Menifee North Shopping Center	Free-Standing Discount Superstore	200.000	TSF
		Bank with Drive-through Window	5.500	TSF
		Fast-food w/ Drive-Thru	6.700	TSF
		Shopping Center	10.000	TSF
		Gas Station & Market / Car Wash	16	VFP
M10	TR 29835	Single Family Residential	543	DU
	TR 31098	Single Family Residential	264	DU
M11	CUP 03549	Self-Storage Facility	152.893	TSF
		Grocery Store	45.000	TSF
		Pharmacy	14.600	TSF
		Shopping Center	11.500	TSF
		Restaurants	6.100	TSF
		Fast-food w/ Drive-Thru	3.500	TSF
		Gas Station & Market / Car Wash	16	VFP

No.	Project Name	Land Use	Quantity[1]
M12	PP 19469R1	Senior Apartments	221 DU
M13	GPA 2016-061; SPA -062; TR -063	Single Family Residential	54 DU
M14	2015-211	Single Family Residential	75 DU
M15	TR 31582	Single Family Residential (50% Built)	140 DU
M16	TR 32100	Single Family Residential	170 DU
	TR 32101	Single Family Residential	197 DU
	TR 32102	Single Family Residential	272 DU
M17	Nautical Cove Residential	Single Family Residential	235 DU
M18	Menifee Heights - TR32277	Single Family Residential	359 DU
		Active Parks	10.2 AC
M19	CUP 2016-110	Fast-food w/ Drive-Thru	2.400 DU
M20	Newport & Menifee Retail	Shopping Center	138.091 TSF
M21	The Lakes (TR 30422 / SP 247 Amendment 1)	Single Family Residential (75% Built)82	327 DU
M22	CUP 2016-183	Assisted Living	45.246 TSF
		Mixed Office/Retail	10.368 TSF
M23	TR 28859	Single Family Residential (65% Built)	86 DU
M24	TTM 31456	Single Family Residential	177 DU

[1] TSF = Thousand Square Feet; DU = Dwelling Unit; AC = Acres; STU = Students; VFP = Vehicle Fueling Positions

EXHIBIT 4-3: CUMULATIVE DEVELOPMENT LOCATION MAP

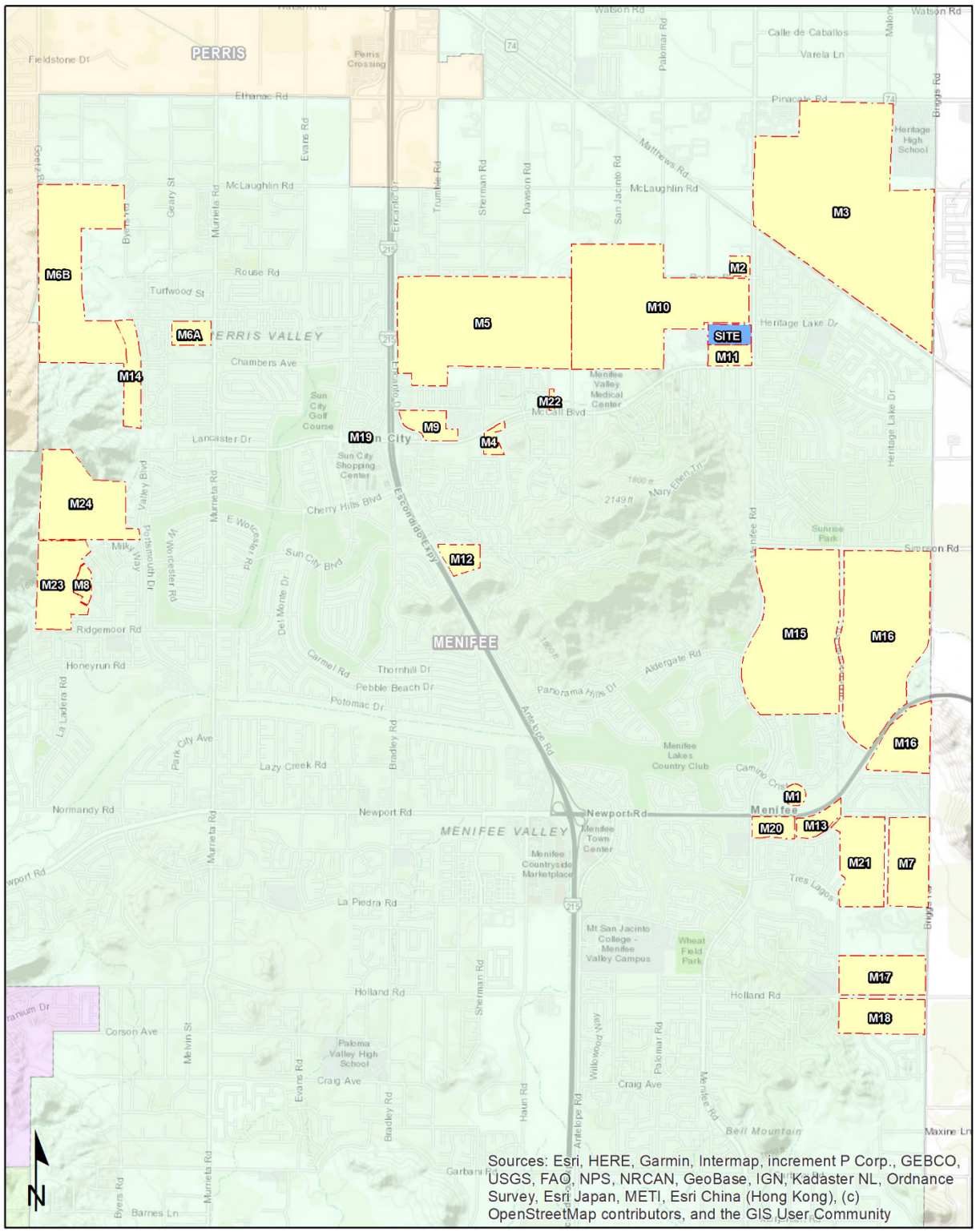
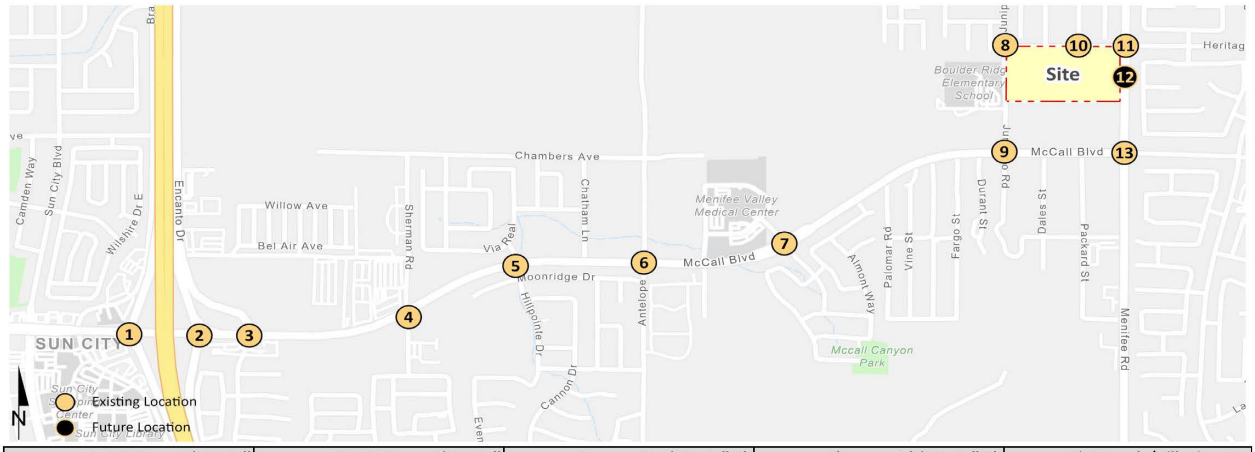
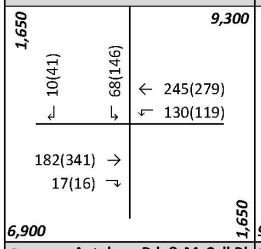


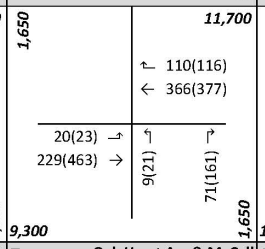
EXHIBIT 4-4: CUMULATIVE ONLY TRAFFIC VOLUMES



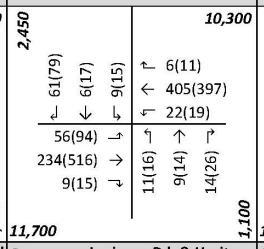
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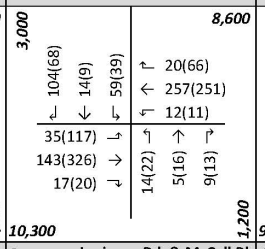
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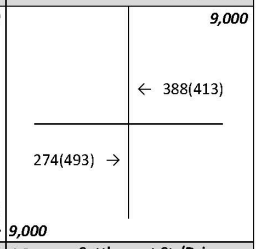
3 Encanto Dr. & McCall Bl.



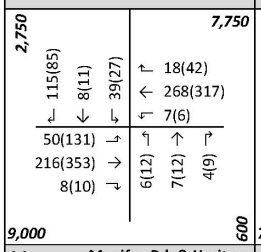
4 Sherman Rd.& McCall Bl.



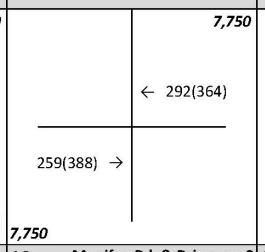
5 Via Entrada/Hillpointe Dr. & McCall Bl.



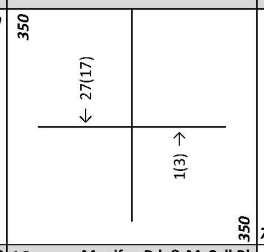
6 Antelope Rd. & McCall Bl.



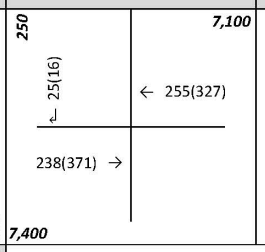
7 Oak Hurst Av. & McCall Bl.



8 Junipero Rd. & Heritage Lake Dr.

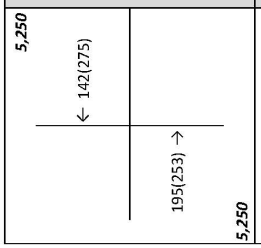


9 Junipero Rd. & McCall Bl.

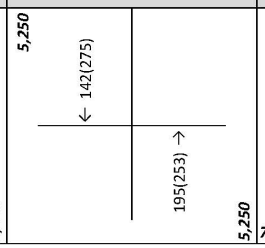


10 Settlement St./Driveway 1 & Heritage Lake Dr.

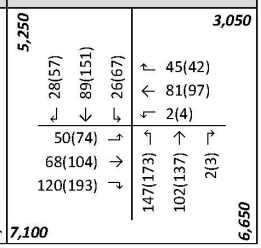
11 Menifee Rd. & Heritage Lake Dr.



12 Menifee Rd. & Driveway 2



13 Menifee Rd. & McCall Bl.



##(##) AM(PM) Peak Hour Intersection Volumes
***Calculated Average Daily Trips***

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5 E+P TRAFFIC CONDITIONS

This section discusses the traffic forecasts for Existing plus Project (E+P) conditions and the resulting intersection operations, traffic signal warrant, roadway segment, and freeway off-ramp queuing analyses.

5.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for E+P conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for E+P conditions only (e.g., intersection and roadway improvements at the Project's frontage and driveways).

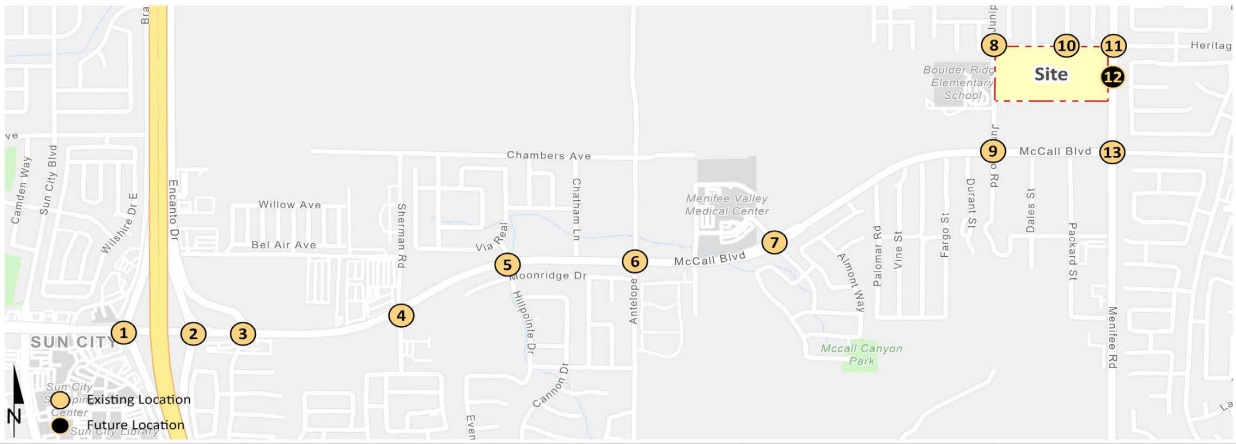
5.2 EXISTING PLUS PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes Existing traffic volumes plus Project traffic. The weekday ADT and weekday/weekend peak hour intersection turning movement volumes which can be expected for E+P traffic conditions are shown on Exhibit 5-1.

5.3 INTERSECTION OPERATIONS ANALYSIS

E+P peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2 Methodologies of this TA. The intersection analysis results are summarized on Table 5-1 for E+P traffic conditions, which indicate that all of the study area intersections are anticipated to continue to operate at an acceptable LOS under E+P traffic conditions, consistent with Existing traffic conditions.

EXHIBIT 5-1: E+P TRAFFIC VOLUMES



1 I-215 SB Ramps & McCall Bl.

13,500 | 245(483) ↲ | 1(0) ↓ | 203(367) ↳ | 38,250
← 781(872)
↰ 500(307)
668(853) →
396(369) ↴ | 10,800
41,150

2 I-215 NB Ramps & McCall Bl.

8,000 | 31,400
↱ 403(205)
← 1081(785)
234(294) ↳
637(926) →
↰ 199(394) | ↱ 232(513) | 14,400
38,250

3 Encanto Dr. & McCall Bl.

5,950 | 175(134) ↲ | 18(22) ↓ | 24(32) ↳ | 29,900
↱ 27(18)
← 1146(709)
↰ 47(34)
125(147) ↳
656(1065) →
88(228) ↴ | 164(148) ↰ | 26(19) ↑ | 53(25) ↱ | 7,600
31,400

4 Sherman Rd.& McCall Bl.

1,850 | 127(12) ↲ | 33(10) ↓ | 102(32) ↳ | 28,700
↱ 96(30)
← 1114(673)
↰ 32(17)
159(25) ↳
597(1038) →
34(62) ↴ | 83(71) ↰ | 37(7) ↑ | 13(17) ↱ | 2,950
29,900

5 Via Entrada/Hillpointe Dr. & McCall Bl.

1,750 | 44(30) ↲ | 15(4) ↓ | 32(14) ↳ | 26,650
↱ 23(11)
← 1097(669)
↰ 29(26)
13(47) ↳
669(941) →
30(115) ↴ | 100(68) ↰ | 3(2) ↑ | 37(19) ↱ | 3,750
29,700

6 Antelope Rd. & McCall Bl.

2,250 | 96(56) ↲ | 3(1) ↓ | 11(11) ↳ | 23,950
↱ 58(4)
← 1006(622)
↰ 49(21)
56(74) ↳
656(842) →
17(43) ↴ | 44(25) ↰ | 14(6) ↑ | 75(19) ↱ | 1,850
26,400

7 Oak Hurst Av. & McCall Bl.

300 | 0(6) ↲ | 1(0) ↓ | 15(9) ↳ | 22,650
↱ 6(3)
← 1059(580)
↰ 27(17)
2(2) ↳
752(810) →
9(40) ↴ | 30(41) ↰ | 1(0) ↑ | 34(10) ↱ | 1,750
23,450

8 Junipero Rd. & Heritage Lake Dr.

950 | 250(17) ↓ | 24(7) ↳ | 1,250
↱ 27(10)
77(27) ↰
152(25) ↑ | 54(47) ↱ | 1,650
18,400

9 Junipero Rd. & McCall Bl.

2,650 | 203(47) ↲ | 2(0) ↓ | 167(5) ↳ | 21,450
↱ 77(8)
← 884(566)
↰ 6(3)
206(71) ↳
616(758) →
1(3) ↴ | 5(3) ↰ | 1(0) ↑ | 7(0) ↱ | 150
1,250

10 Settlement St./Driveway 1 & Heritage Lake Dr.

250 | 6(3) ↲ | 15(5) ↳ | 1,150
↱ 10(6)
← 62(15)
↰ 6(19)
3(1) ↳
55(8) →
14(46) ↴ | 29(18) ↰ | 29(18) ↑ | 18(11) ↱ | 1,200
1,250

11 Menifee Rd. & Heritage Lake Dr.

15,450 | 29(21) ↲ | 540(421) ↓ | 95(94) ↳ | 4,000
↱ 159(40)
← 24(8)
↰ 89(46)
32(15) ↳
23(6) →
34(3) ↴ | 28(23) ↰ | 574(378) ↑ | 45(58) ↱ | 12,750
1,250

12 Menifee Rd. & Driveway 2

12,900 | 3(12) ↲ | 663(470) ↓
26(16) ↴ | 647(459) ↑ | 13,050
400

13 Menifee Rd. & McCall Bl.

13,050 | 180(166) ↲ | 338(258) ↓ | 171(62) ↳ | 13,100
↱ 204(46)
← 465(240)
↰ 51(47)
137(184) ↳
354(370) →
286(218) ↴ | 323(147) ↰ | 306(229) ↑ | 36(56) ↱ | 15,200
21,200

##(##) AM(PM) Peak Hour Intersection Volumes
Calculated Average Daily Trips

TABLE 5-1: INTERSECTION ANALYSIS FOR E+P CONDITIONS

#	Intersection	Traffic Control[1]	Existing (2022) Delay[2] (secs.) AM	Existing (2022) Delay[2] (secs.) PM	Existing (2022) Level of Service AM	Existing (2022) Level of Service PM	E+P Delay[2] (secs.) AM	E+P Delay[2] (secs.) PM	E+P Level of Service AM	E+P Level of Service PM
1	I-215 SB Ramps & McCall Bl.	TS	22.1	24.8	C	C	22.5	25.3	C	C
2	I-215 NB Ramps & McCall Bl.	TS	21.2	28.1	C	C	21.2	28.3	C	C
3	Encanto Dr. & McCall Bl.	TS	18.3	14.7	B	B	18.9	14.9	B	B
4	Sherman Rd.& McCall Bl.	TS	25.2	12.3	C	B	25.4	12.5	C	B
5	Via Entrada/Hillpointe Dr. & McCall Bl.	TS	11.1	10.4	B	B	11.2	10.5	B	B
6	Antelope Rd. & McCall Bl.	TS	16.0	8.0	B	B	16.4	11.9	B	B
7	Oak Hurst Av. & McCall Bl.	TS	8.8	11.9	A	B	8.9	8.0	A	A
8	Junipero Rd. & Heritage Lake Dr.	CSS	15.6	8.8	C	A	18.7	9.2	C	A
9	Junipero Rd. & McCall Bl.	TS	17.0	7.5	B	A	18.7	9.0	B	A
10	Settlement St./Driveway 1 & Heritage Lake Dr.	CSS	9.3	8.7	A	A	9.8	9.5	A	A
11	Menifee Rd. & Heritage Lake Dr.	TS	16.7	11.2	B	B	17.4	11.6	B	B
12	Menifee Rd. & Driveway 2	**CSS**	Future Intersection				12.0	10.9	B	B
13	Menifee Rd. & McCall Bl.	TS	38.1	21.8	D	C	39.4	21.9	D	C

[1] TS = Traffic Signal; CSS = Cross-Street Stop; **CSS** = Improvement

[2] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

5.4 TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants have been performed for E+P traffic conditions based on peak hour intersection turning movements volumes. There are no unsignalized study area intersections anticipated to meet a traffic signal warrant under E+P traffic conditions (see Appendices 5.2).

5.5 ROADWAY SEGMENT CAPACITY ANALYSIS

The County's Guidelines have been used to obtain roadway volume capacity values presented previously in Table 2-4 as the City's current guidelines do not include any roadway capacities. The roadway segment capacities are approximate figures only and are used at the General Plan level to assist in determining the roadway functional classification (number of through lanes) needed to meet traffic demand. Table 5-2 provides a summary of the E+P roadway segment capacity analysis based on the Roadway Segment Capacity Thresholds identified previously in Table 2-4. As shown in Table 5-2, the following roadway segment is anticipated to continue to operate at an unacceptable LOS with the addition of Project traffic under E+P traffic conditions:

- McCall Bl. from Oak Hurst Av. to Junipero Rd. (#3) – LOS F

TABLE 5-2: ROADWAY SEGMENT CAPACITY ANALYSIS FOR E+P CONDITIONS

#	Roadway	Segment Limits	GP Classification	Roadway Section	LOS E Capacity[1]	Existing 2022	V/C[2]	LOS[3]	E+P	V/C[2]	LOS[3]
1	McCall Bl.	I-215 Freeway to Encanto Dr.	Urban Arterial	4D	35,900	30,594	0.85	D	31,403	0.87	D
2	McCall Bl.	Encanto Dr. to Sherman Rd.	Urban Arterial	4D	35,900	29,102	0.81	D	29,912	0.83	D
3	McCall Bl.	Oak Hurst Av. to Junipero Rd.	Urban Arterial	2D	17,950	**17,523**	**0.98**	**E**	**18,413**	**1.03**	**F**
4	McCall Bl.	Junipero Rd. to Menifee Rd.	Urban Arterial	4D	35,900	21,271	0.59	A	21,433	0.60	A
5	Junipero Rd.	Heritage Lake Dr. to McCall Bl.	Collector	2U	13,000	1,904	0.15	A	2,632	0.20	A
6	Heritage Lake Dr.	West of Menifee Rd.	Collector	2U	13,000	744	0.06	A	1,269	0.10	A
7	Menifee Rd.	South of Heritage Lake Dr.	Urban Arterial	4D	35,900	12,634	0.35	A	12,755	0.36	A

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] These maximum roadway capacities have been derived from the following source: County of Riverside Traffic Study Guidelines

[2] V/C = Volume to Capacity Ratio

[3] LOS = Level of Service

5.6 OFF-RAMP QUEUING CAPACITY ANALYSIS

Queuing analysis findings for E+P are presented on Table 5-3. As shown on Table 5-3, there are no movements that are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows with the addition of Project traffic. Worksheets for E+P traffic conditions queuing analysis are provided in Appendix 5.3.

TABLE 5-3: PEAK HOUR OFF-RAMP QUEUING SUMMARY FOR E+P CONDITIONS

Intersection	Movement	Available Stacking Distance (Feet)	Existing (2022) 95th Percentile Queue (Feet) AM Peak	Existing (2022) 95th Percentile Queue (Feet) PM Peak	Existing (2022) Acceptable? [1] AM	Existing (2022) Acceptable? [1] PM	E+P 95th Percentile Queue (Feet) AM Peak	E+P 95th Percentile Queue (Feet) PM Peak	E+P Acceptable? [1] AM	E+P Acceptable? [1] PM
I-215 SB Ramps & McCall Bl. (#1)	SBL/T	1,415	197	287	Yes	Yes	203	305	Yes	Yes
	SBR	455	65	373 [2]	Yes	Yes	66	374 [2]	Yes	Yes
I-215 NB Ramps & McCall Bl. (#2)	NBL/T	1,820	199	324	Yes	Yes	199	324	Yes	Yes
	NBR	240	63	411 [2,3]	Yes	Yes	64	440 [2,3]	Yes	Yes

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 25 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

[2] 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

[3] Although 95th percentile queue is anticipated to exceed the available storage for the turn lane, the adjacent through lane has sufficient storage to accommodate any spillover without spilling back and affecting the I-215 Freeway mainline.

5.7 PROJECT DEFICIENCIES AND RECOMMENDED IMPROVEMENTS

As shown on Table 5-1 and Table 5-3, the addition of Project traffic is not anticipated to result in any peak hour intersection or freeway off-ramp queuing deficiencies. Although Table 5-2 shows that there is a roadway segment deficiency anticipated along McCall Boulevard between Oak Hurst Avenue and Junipero Road, a review of the intersection operations analysis for the locations on either end of the deficient segment indicates roadway widening is not necessary as the intersections are able to process the peak hour traffic volumes (these intersections would be the choke points along the roadway segment). As such, no improvements have been recommended.

6 OPENING YEAR CUMULATIVE (2025) TRAFFIC CONDITIONS

This section discusses the methods used to develop Opening Year Cumulative (2025) Without and With Project traffic forecasts, and the resulting intersection operations, traffic signal warrant, roadway segment, and freeway off-ramp queuing analyses.

6.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for Opening Year Cumulative (2025) conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for Opening Year Cumulative conditions only (e.g., intersection and roadway improvements along the Project's frontage and driveways).
- If applicable, driveways and those facilities assumed to be constructed by cumulative developments to provide site access are also assumed to be in place for Opening Year Cumulative conditions only.

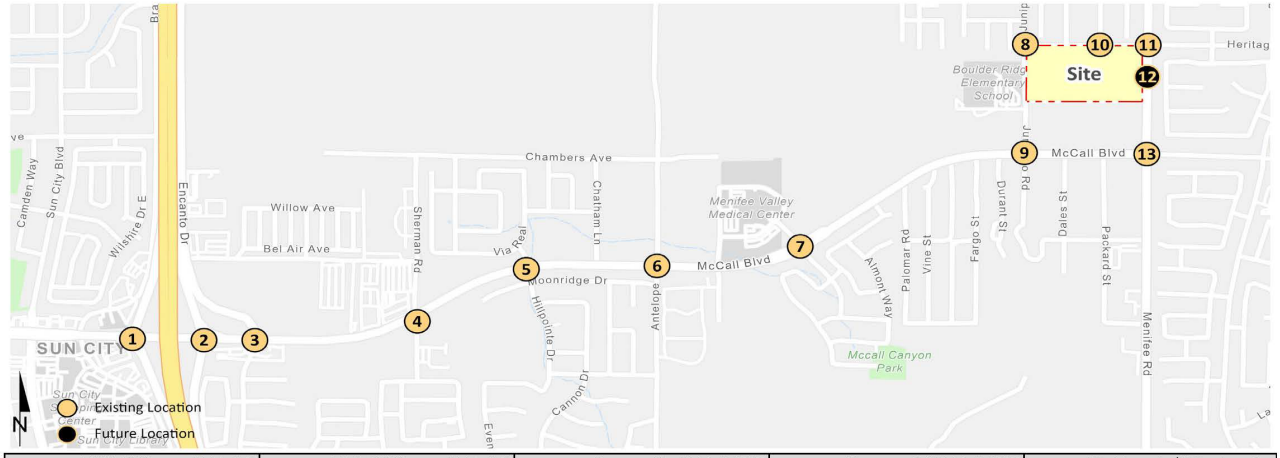
6.2 WITHOUT PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes Existing traffic volumes plus traffic from pending and approved but not yet constructed known development projects in the area. The weekday ADT and weekday AM and PM peak hour volumes which can be expected for Opening Year Cumulative (2025) Without Project traffic conditions are shown on Exhibit 6-1.

6.3 WITH PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes Opening Year Cumulative (2025) Without Project traffic in conjunction with the addition of Project traffic. The weekday ADT and weekday AM and PM peak hour volumes which can be expected for Opening Year Cumulative (2025) With Project traffic conditions are shown on Exhibit 6-2.

EXHIBIT 6-1: OPENING YEAR CUMULATIVE (2025) WITHOUT PROJECT TRAFFIC VOLUMES



1 I-215 SB Ramps & McCall Bl.

			49,400
15,750	269(554) ↲ 1(0) ← 277(515) ↳	← 1070(1202) ↰ 644(435)	
	889(1242) →		
	437(407) ↴		12,950
50,500			

2 I-215 NB Ramps & McCall Bl.

			44,200
9,900		↱ 495(310) ← 1429(1151)	
	268(334) ↳	↰	↱
	859(1366) →	220(439)	298(659)
49,400			16,800

3 Encanto Dr. & McCall Bl.

			41,200
8,750	247(221) ↲ 25(40) ← 33(49) ↳	↱ 33(30) ← 1514(1125) ↰ 69(55)	
	189(249) ↳	↰	↱
	878(1605) →	185(173)	67(52)
	102(257) ↴	37(34)	9,200
44,200			

4 Sherman Rd.& McCall Bl.

			38,100
4,850	239(81) ↲ 49(20) ← 160(69) ↳	↱ 112(96) ← 1334(941) ↰ 44(29)	
	204(144) ↳	↰	↱
	728(1386) →	102(97)	44(23)
	53(86) ↴	22(31)	4,300
41,150			

5 Via Entrada/Hillpointe Dr. & McCall Bl.

			36,350
1,850	47(32) ↲ 16(4) ← 32(15) ↳	↱ 23(12) ← 1445(1096) ↰ 29(28)	
	14(50) ↳	↰	↱
	930(1447) →	106(72)	3(2)
	32(122) ↴	37(20)	3,950
39,600			

6 Antelope Rd. & McCall Bl.

			32,200
5,150	216(144) ↲ 11(12) ← 50(28) ↳	↱ 76(46) ← 1234(950) ↰ 56(28)	
	109(209) ↳	↰	↱
	859(1201) →	53(39)	79(29)
	26(55) ↴	21(18)	2,550
36,050			

7 Oak Hurst Av. & McCall Bl.

			30,850
350	0(6) ↲ 1(0) ← 15(10) ↳	↱ 6(3) ← 1311(953) ↰ 27(18)	
	2(2) ↳	↰	↱
	998(1203) →	32(44)	34(11)
	10(42) ↴	1(0)	1,850
31,700			

8 Junipero Rd. & Heritage Lake Dr.

			450
1,350	292(35) ← 24(7) ↳	↱ 27(11) ↰ 48(10)	
		↰	↱
		162(30)	40(1)
			1,200
26,000			

9 Junipero Rd. & McCall Bl.

			29,700
2,300	213(49) ↲ 2(0) ← 167(5) ↳	↱ 77(8) ← 1124(918) ↰ 6(3)	
	205(31) ↳	↰	↱
	854(1175) →	5(3)	7(0)
	1(3) ↴	1(0)	150
450			

10 Settlement St./Driveway 1 & Heritage Lake Dr.

			800
250	6(3) ↲ 15(5) ↳	↱ 10(6) ← 62(16)	
	3(1) ↳		
	55(8) →		

11 Menifee Rd. & Heritage Lake Dr.

			4,150
21,250	25(6) ↲ 715(721) ← 95(100) ↳	↱ 159(42) ← 23(4) ↰ 89(49)	
	18(6) ↳	↰	↱
	19(4) →	27(12)	45(62)
	36(3) ↴	804(654)	18,650
800			

12 Menifee Rd. & Driveway 2

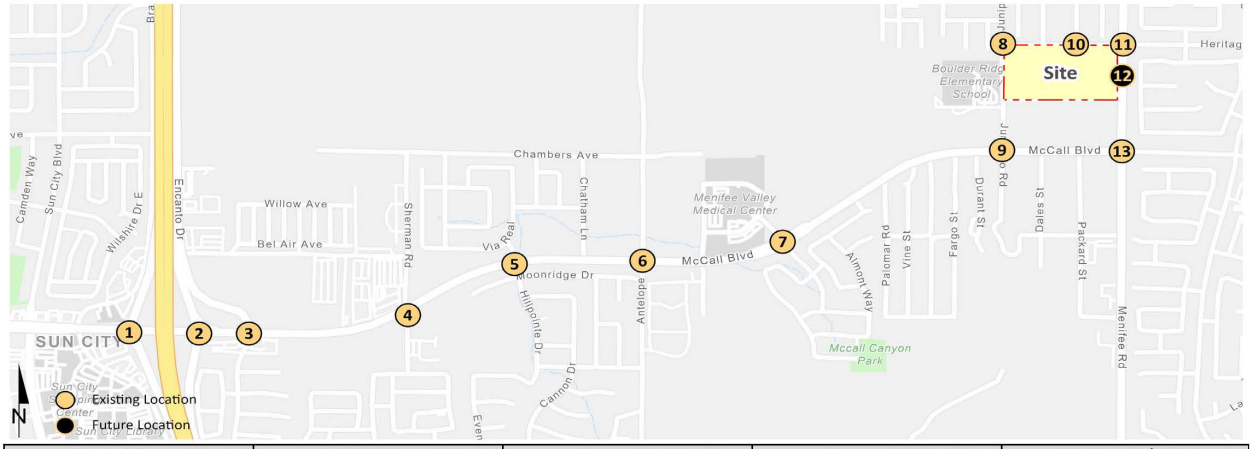
18,650	845(773) ←		
			↱
			878(727)
			18,650

13 Menifee Rd. & McCall Bl.

			16,900
18,650	203(224) ↲ 440(419) ← 193(130) ↳	↱ 248(87) ← 546(351) ↰ 53(53)	
	195(269) ↳	↰	↱
	422(497) →	489(329)	424(371)
	423(424) ↴	38(62)	22,650
29,450			

##(##) AM(PM) Peak Hour Intersection Volumes
***Calculated Average Daily Trips***

EXHIBIT 6-2: OPENING YEAR CUMULATIVE (2025) WITH PROJECT TRAFFIC VOLUMES



1 I-215 SB Ramps & McCall Bl.

				49,850
15,950	269(554)	1(0)	283(534)	
			←	1074(1204)
			↰	659(444)
	890(1246)	→		
	437(407)	↲		13,150
50,550				

2 I-215 NB Ramps & McCall Bl.

				45,000
10,100			↱	513(321)
			←	1447(1162)
	268(334)	↳		
	866(1389)	→		
			220(439)	303(674)
49,850				16,950

3 Encanto Dr. & McCall Bl.

				42,000
8,750	247(221)	25(40)	33(49)	
			↱	33(30)
			←	1551(1148)
			↰	69(55)
	189(249)	↳		
	890(1644)	→		
	102(257)	↲		9,200
45,000				

4 Sherman Rd.& McCall Bl.

				38,950
4,950	239(81)	49(20)	161(73)	
			↱	116(98)
			←	1371(964)
			↰	44(29)
	204(144)	↳		
	740(1425)	→		
	53(86)	↲		4,300
41,950				

5 Via Entrada/Hillpointe Dr. & McCall Bl.

				37,250
1,850	47(32)	16(4)	32(15)	
			↱	23(12)
			←	1485(1121)
			↰	29(28)
	14(50)	↳		
	943(1489)	→		
	32(122)	↲		3,950
40,450				

6 Antelope Rd. & McCall Bl.

				33,100
5,150	216(144)	11(12)	50(28)	
			↱	76(46)
			←	1274(975)
			↰	56(28)
	109(209)	↳		
	872(1243)	→		
	26(55)	↲		2,550
36,950				

7 Oak Hurst Av. & McCall Bl.

				31,750
350	0(6)	1(0)	15(10)	
			↱	6(3)
			←	1351(978)
			↰	27(18)
	2(2)	↳		
	1011(1245)	→		
	10(42)	↲		1,850
32,600				

8 Junipero Rd. & Heritage Lake Dr.

				1,250
1,350		292(35)	24(7)	
			↱	27(11)
			↰	77(28)
				162(30)
				54(47)
				2,000
32,600				

9 Junipero Rd. & McCall Bl.

				29,850
3,000	239(65)	2(0)	167(5)	
			↱	77(8)
			←	1139(927)
			↰	6(3)
	218(73)	↳		
	854(1175)	→		
	1(3)	↲		150
26,850				

10 Settlement St./Driveway 1 & Heritage Lake Dr.

				1,200
250	6(3)		15(5)	
			↱	10(6)
			←	62(16)
			↰	6(19)
	3(1)	↳		
	55(8)	→		
	14(46)	↲		1,200
1,250				

11 Menifee Rd. & Heritage Lake Dr.

				4,250
21,600	30(21)	715(721)	95(100)	
			↱	159(42)
			←	24(8)
			↰	89(49)
	33(15)	↳		
	23(6)	→		
	36(3)	↲		18,750
1,300				

12 Menifee Rd. & Driveway 2

18,900		3(12)		
			←	845(773)
	26(16)	↲		
				881(739)
400				19,050

13 Menifee Rd. & McCall Bl.

				16,950
19,050	218(233)	447(424)	197(132)	
			↱	249(91)
			←	546(351)
			↰	53(53)
	195(269)	↳		
	422(497)	→		
	423(424)	↲		22,800
29,600				

##(##) AM(PM) Peak Hour Intersection Volumes

Calculated Average Daily Trips

6.4 INTERSECTION OPERATIONS ANALYSIS

6.4.1 OPENING YEAR CUMULATIVE (2025) WITHOUT PROJECT TRAFFIC CONDITIONS

Opening Year Cumulative (2025) Without Project peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2 Methodologies of this TA. The intersection analysis results are summarized on Table 5-1 for Opening Year Cumulative (2025) traffic conditions, which indicate that all of the study area intersections are anticipated to continue to operate at an acceptable LOS under Opening Year Cumulative (2025) Without Project traffic conditions, with the exception of the following intersections:

- I-215 SB Ramps & McCall Bl. (#1) – LOS E PM peak hour only
- Menifee Rd. & McCall Bl. (#13) – LOS F AM peak hour only

The intersection operations analysis worksheets for Opening Year Cumulative (2025) Without Project traffic conditions are included in Appendix 6.1 of this TA.

6.4.2 OPENING YEAR CUMULATIVE (2025) WITH PROJECT TRAFFIC CONDITIONS

As shown on Table 6-1, the addition of Project traffic is not anticipated to result in any additional deficiencies. The intersection operations analysis worksheets for Opening Year Cumulative (2025) With Project traffic conditions are included in Appendix 6.2 of this TA

TABLE 6-1: INTERSECTION ANALYSIS FOR OPENING YEAR CUMULATIVE (2025) CONDITIONS

			2025 Without Project				2025 With Project			
			Delay[2] (secs.)		Level of Service		Delay[2] (secs.)		Level of Service	
#	Intersection	Traffic Control[1]	AM	PM	AM	PM	AM	PM	AM	PM
1	I-215 SB Ramps & McCall Bl.	TS	34.4	**55.2**	C	**E**	35.6	**57.4**	D	**E**
2	I-215 NB Ramps & McCall Bl.	TS	23.3	41.5	C	D	23.4	43.4	C	D
3	Encanto Dr. & McCall Bl.	TS	47.6	49.2	D	D	51.2	52.8	D	D
4	Sherman Rd.& McCall Bl.	TS	48.2	32.3	D	C	51.6	33.9	D	C
5	Via Entrada/Hillpointe Dr. & McCall Bl.	TS	14.0	14.2	B	B	14.6	15.0	B	B
6	Antelope Rd. & McCall Bl.	TS	30.5	22.1	C	C	32.7	22.6	C	C
7	Oak Hurst Av. & McCall Bl.	TS	10.5	8.9	B	A	10.9	9.1	B	A
8	Junipero Rd. & Heritage Lake Dr.	CSS	17.0	8.9	C	A	21.2	9.3	C	A
9	Junipero Rd. & McCall Bl.	TS	30.4	22.9	C	C	33.2	27.8	C	C
10	Settlement St./Driveway 1 & Heritage Lake Dr.	CSS	9.3	8.7	A	A	9.8	9.6	A	A
11	Menifee Rd. & Heritage Lake Dr.	TS	17.4	11.8	B	B	18.2	12.2	B	B
12	Menifee Rd. & Driveway 2	**CSS**	Future Intersection				13.2	12.6	B	B
13	Menifee Rd. & McCall Bl.	TS	**85.6**	46.1	**F**	D	**88.4**	46.8	**F**	D

* **BOLD** = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] TS = Traffic Signal; CSS = Cross-Street Stop; **CSS** = Improvement

[2] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

6.5 TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants have been performed for Opening Year Cumulative (2025) traffic conditions based on peak hour intersection turning movements volumes. There are no unsignalized study area intersections anticipated to meet a traffic signal warrant under Opening Year Cumulative (2025) Without Project or With Project traffic conditions (see Appendices 6.3 and 6.4).

6.6 ROADWAY SEGMENT CAPACITY ANALYSIS

The County's Guidelines have been used to obtain roadway volume capacity values presented previously in Table 2-4 as the City's Guidelines do not include any roadway capacities. The roadway segment capacities are approximate figures only and are used at the General Plan level to assist in determining the roadway functional classification (number of through lanes) needed to meet traffic demand. Table 6-2 provides a summary of the Opening Year Cumulative (2025) conditions roadway segment capacity analysis based on the Roadway Segment Capacity Thresholds identified previously in Table 2-4. As shown in Table 6-2, the study area roadway segments are anticipated to continue to operate at an acceptable LOS based on the City's planning level daily roadway capacity thresholds for Opening Year Cumulative (2025) Without Project traffic conditions, with the exception of the following segments:

- McCall Bl. from I-215 Freeway to Encanto Dr. (#1) – LOS F
- McCall Bl. from Encanto Dr. to Sherman Rd. (#2) – LOS F
- McCall Bl. from Oak Hurst Av. to Junipero Rd. (#3) – LOS F

There are no additional deficient study area roadway segments anticipated with the addition of Project traffic.

TABLE 6-2: ROADWAY SEGMENT CAPACITY ANALYSIS FOR OPENING YEAR CUMULATIVE (2025) CONDITIONS

#	Roadway	Segment Limits	GP Classification	Roadway Section	LOS E Capacity[1]	2025 NP	V/C[2]	LOS[3]	2025 WP	V/C[2]	LOS[3]
1	McCall Bl.	I-215 Freeway to Encanto Dr.	Urban Arterial	4D	35,900	**43,555**	**1.21**	**F**	**44,364**	**1.24**	**F**
2	McCall Bl.	Encanto Dr. to Sherman Rd.	Urban Arterial	4D	35,900	**40,575**	**1.13**	**F**	**41,385**	**1.15**	**F**
3	McCall Bl.	Oak Hurst Av. to Junipero Rd.	Urban Arterial	2D	17,950	**25,612**	**1.43**	**F**	**26,502**	**1.48**	**F**
4	McCall Bl.	Junipero Rd. to Menifee Rd.	Urban Arterial	4D	35,900	29,238	0.81	D	29,400	0.82	D
5	Junipero Rd.	Heritage Lake Dr. to McCall Bl.	Collector	2U	13,000	2,254	0.17	A	2,982	0.23	A
6	Heritage Lake Dr.	West of Menifee Rd.	Collector	2U	13,000	774	0.06	A	1,299	0.10	A
7	Menifee Rd.	South of Heritage Lake Dr.	Urban Arterial	4D	35,900	18,373	0.51	A	18,494	0.52	A

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] These maximum roadway capacities have been derived from the following source: County of Riverside Traffic Study Guidelines

[2] V/C = Volume to Capacity Ratio

[3] LOS = Level of Service

6.7 OFF-RAMP QUEUING ANALYSIS

Queuing analysis findings for Opening Year Cumulative (2025) Without Project traffic conditions are presented on Table 6-3. As shown on Table 6-3, there are no movements that are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows with the addition of Project traffic. Worksheets for Opening Year Cumulative (2025) Without and With Project traffic conditions queuing analysis are provided in Appendix 6.5 and Appendix 6.6, respectively.

TABLE 6-3: PEAK HOUR OFF-RAMP QUEUING ANALYSIS FOR OPENING YEAR CUMULATIVE (2025) CONDITIONS

			2025 Without Project				2025 With Project			
			95th Percentile Queue (Feet)		Acceptable? [1]		95th Percentile Queue (Feet)		Acceptable? [1]	
Intersection	Movement	Available Stacking Distance (Feet)	AM Peak	PM Peak	AM	PM	AM Peak	PM Peak	AM	PM
I-215 SB Ramps & McCall Bl. (#1)	SBL/T	1,415	325 [2]	519 [2]	Yes	Yes	335 [2]	547 [2]	Yes	Yes
	SBR	455	168	558 [2,3]	Yes	Yes	169	558 [2,3]	Yes	Yes
I-215 NB Ramps & McCall Bl. (#2)	NBL/T	1,820	220	370	Yes	Yes	220	370	Yes	Yes
	NBR	240	165	717 [2,3]	Yes	Yes	172	742 [2,3]	Yes	Yes

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 25 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

[2] 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

[3] Although 95th percentile queue is anticipated to exceed the available storage for the turn lane, the adjacent through lane has sufficient storage to accommodate any spillover without spilling back and affecting the I-215 Freeway mainline.

6.8 DEFICIENCIES AND IMPROVEMENTS

This section provides a summary of Project deficiencies and recommended improvements. Based on the City of Menifee deficiency criteria discussed in Section 2.7 Deficiency Criteria, roadway segments were found to be deficient. Improvements necessary to improve project-related traffic deficiencies are also discussed below.

6.8.1 IMPROVEMENTS TO ADDRESS DEFICIENCIES AT INTERSECTIONS

Table 6-4 indicates the improvements needed to address LOS deficiencies at each of the study area intersections under Opening Year Cumulative (2025) With Project traffic conditions. The improvements have been identified to improve the Opening Year Cumulative (2025) With Project deficiencies back to acceptable levels. Intersection analysis worksheets for Opening Year Cumulative (2025) With Project traffic conditions, with improvements, are provided in Appendix 6.7. The following improvements are identified as cumulative improvements where the Project is anticipated to contribute to future deficiencies.

For the recommended improvement at the I-215 Southbound Ramps and McCall Boulevard intersection, the bridge over the I-215 Freeway may need to be widened in order to accommodate the recommended improvement. In addition, the 2nd westbound left turn lane at the I-215 Southbound Ramps on McCall Boulevard would require the southbound on-ramp to be widened to accommodate the two receiving lanes. These improvements (and likely additional improvements) would likely be

further evaluated as part of the environmental analysis for a future interchange project at the I-215 Freeway and McCall Boulevard interchange, which is identified as a TUMF interchange.

Improvements at Menifee Road and McCall Boulevard would require improvements to the southwest corner in order to accommodate the recommended improvements on both the northbound and eastbound approaches. The improvement to accommodate a new eastbound right turn lane would require undergrounding existing overhead utilities and the improvements to the northbound approach could be accommodated by restriping. Vehicle turn templates should be reviewed to ensure that the dual northbound left turn lanes do not conflict with the southbound left turn lane.

TABLE 6-4: INTERSECTION ANALYSIS FOR OPENING YEAR CUMULATVE (2025) CONDITIONS WITH IMPROVEMENTS

			Intersection Approach Lanes[1]												Delay[2] (secs.)		Level of Service	
		Traffic	Northbound			Southbound			Eastbound			Westbound						
#	Intersection	Control[3]	L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
1	I-215 SB Ramps & McCall Bl.																	
	- Without Improvements	TS	0	0	0	0	1	1	0	2	1	1	2	0	35.6	**57.4**	D	**E**
	- With Improvements	TS	0	0	0	0	1	1	0	2	1	**2**	2	0	22.7	32.5	C	C
13	Menifee Rd. & McCall Bl.																	
	- Without Improvements	TS	1	2	d	1	2	0	1	2	0	2	2	1	**88.4**	46.8	**F**	D
	- With Improvements	TS	**2**	2	**0**	1	2	0	1	2	**1>**	2	2	1	48.0	27.8	D	C

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; d = Defacto Right Turn Lane; > = Right-Turn Overlap Phasing; **1** = Improvement

[2] Per the Highway Capacity Manual 6th Edition, overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal

6.8.2 IMPROVEMENTS TO ADDRESS DEFICIENCIES ON ROADWAY SEGMENTS

As shown previously in Table 6-2, there are study area roadway segments that are anticipated to experience capacity issues for Opening Year Cumulative (2025) Without and With Project traffic conditions. However, McCall Boulevard is classified as an Urban Arterial Highway that includes 6-lanes separated by a raised median (3 lanes in each direction of travel). Portions of Menifee Road (between Aspel Road and Menifee Road) is identified as a TUMF facility. The roadway capacity for a 6-lane Urban Arterial Highway is 53,900 vehicles per day. As shown on Table 6-5, McCall Boulevard would not experience any capacity issues with the ultimate roadway cross-section in place.

TABLE 6-5: ROADWAY SEGMENT CAPACITY ANALYSIS FOR OPENING YEAR CUMULATIVE (2025) CONDITIONS WITH IMPROVEMENTS

#	Roadway	Segment Limits	GP Classification	Roadway Section	LOS E Capacity[1]	2025 NP	V/C[2]	LOS[3]	2025 WP	V/C[2]	LOS[3]
1	McCall Bl.	I-215 Freeway to Encanto Dr.	Urban Arterial	6D	53,900	43,555	0.81	D	44,364	0.82	D
2	McCall Bl.	Encanto Dr. to Sherman Rd.	Urban Arterial	6D	53,900	40,575	0.75	C	41,385	0.77	C
3	McCall Bl.	Oak Hurst Av. to Junipero Rd.	Urban Arterial	6D	53,900	25,612	0.48	A	26,502	0.49	A

[1] These maximum roadway capacities have been derived from the following source: County of Riverside Traffic Study Guidelines

[2] V/C = Volume to Capacity Ratio

[3] LOS = Level of Service

6.8.3 IMPROVEMENTS TO ADDRESS DEFICIENCIES ON OFF-RAMP QUEUES

As shown previously in Table 6-3, there are no movements that are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows for Opening Year Cumulative (2025) With Project traffic conditions. As such, no improvements have been identified.

7 LOCAL AND REGIONAL FUNDING MECHANISMS

Transportation improvements within the City of Menifee are funded through a combination of improvements constructed by the Project, development impact fee programs or fair share contributions. Fee programs applicable to the Project are described below.

7.1 TRANSPORTATION UNIFORM MITIGATION FEE (TUMF) PROGRAM

The Western Riverside Council of Governments (WRCOG) is responsible for establishing and updating TUMF rates. The County may grant to developers a credit against the specific components of fees for the dedication of land, or the construction of facilities identified in the list of improvements funded by each of these fee programs. Fees are based upon projected land uses and a related transportation need to address growth based upon a 2016 Nexus study.

TUMF is an ambitious regional program created to address cumulative impacts of growth throughout western Riverside County. Program guidelines are being handled on an iterative basis. Exemptions, credits, reimbursements, and local administration are being deferred to primary agencies. The County of Riverside serves this function for the proposed Project. Fees submitted to the County are passed on to the WRCOG as the ultimate program administrator.

TUMF guidelines empower a local zone committee to prioritize and arbitrate certain projects. The Project is located in the Central Zone. The zone has developed a 5-year capital improvement program to prioritize public construction of certain roads. TUMF is focused on improvements necessitated by regional growth. The Project will participate in contributing to future regional County-wide improvements through participation and payment of applicable TUMF fees.

7.2 CITY OF MENIFEE DEVELOPMENT IMPACT FEE (DIF) PROGRAM

The Project will also be subject to City of Menifee's DIF program which includes a component for roads and signals. The City's DIF program has been updated in July 2021 and discusses the local (as opposed to regional) streets and signal improvements planned for the City through build-out of the existing City limits. The Project will participate in contributing to future planned City improvements through participation and payment of applicable DIF fees.

7.3 MEASURE A

Although not a fee payment, Measure A is another source for funds that are applied towards regional transportation improvements. Measure A, Riverside County's half-cent sales tax for transportation, was adopted by voters in 1988 and extended in 2002. It will continue to fund transportation improvements through 2039. Measure A funds a wide variety of transportation projects and services throughout the County. RCTC is responsible for administering the program. Measure A dollars are spent in accordance with a voter-approved expenditure plan that was adopted as part of the 1988 election.

7.4 FAIR SHARE CONTRIBUTION

Project improvements may include a combination of fee payments to established programs, construction of specific improvements, payment of a fair share contribution toward future improvements or a combination of these approaches. Improvements constructed by development may be eligible for a fee credit or reimbursement through the program where appropriate (to be determined at the City's discretion). When off-site improvements are identified with a minor share of responsibility assigned to proposed development, the approving jurisdiction may elect to collect a fair share contribution or require the development to construct improvements. Detailed fair share calculations, for each peak hour, have been provided in Table 7-1 for the applicable deficient study area intersection. In addition, fair share has also been calculated for McCall Boulevard based on ADT volumes for each segment between the study area intersections. These fees are collected with the proceeds solely used as part of a funding mechanism aimed at ensuring that regional highways and arterial expansions keep pace with the projected population increases.

TABLE 7-1: PROJECT FAIR SHARE CALCULATIONS

# Intersection	Existing	Project	2025 WP	Total New Traffic	Project % of New Traffic
Peak Hour Volumes:					
13 Menifee Rd. & McCall Bl.					
AM:	2,822	29	3,702	880	**3.3%**
PM:	1,995	28	3,245	1,250	2.2%
Average Daily Traffic (ADT):					
McCall Bl.					
I-215 to Encanto Dr.:	30,594	810	45,001	14,407	5.6%
Encanto Dr. to Sherman Rd.:	29,102	810	41,990	12,888	6.3%
Sherman Rd. to Hillpointe Dr.:	28,814	890	40,470	11,656	7.6%
Hillpointe Dr. to Antelope Rd.:	25,778	890	37,248	11,470	7.8%
Antelope Rd. to Oak Hurst Dr.:	23,045	890	33,086	10,041	**8.9%**
Oak Hurst Dr. to Junipero Rd.:	17,523	890	26,867	9,344	**9.5%**

BOLD = Denotes highest fair share percentage.

8 REFERENCES

1. City of Menifee. Traffic Impact Analysis Guidelines for Vehicle Miles Traveled. City of Menifee : s.n., Adopted June 3, 2020.

2. Institute of Transportation Engineers. Trip Generation Manual. 11th Edition. 2021.

3. VRPA Technologies, Inc. for Riverside County Transportation Commission. Riverside County Long Range Transportation Study. County of Riverside : VRPA Technologies, Inc., December 2019.

4. Transportation Research Board. Highway Capacity Manual (HCM). 6th Edition. s.l. : National Academy of Sciences, 2016.

5. Caltrans. California Manual on Uniform Traffic Control Devices (MUTCD). [book auth.] California Department of Transportation. California Manual on Uniform Traffic Control Devices (CAMUTCD). 2017.

6. Circulation Element C-1: Roadway System. The City of Menifee, California. [Online] [Cited: 2014 йил 30-May.] https://www.cityofmenifee.us/215/C-1-Roadway-System.

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APPENDIX 1.1: TRAFFIC STUDY SCOPING AGREEMENT

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CITY OF MENIFEE

MEMORANDUM

PUBLIC WORKS/ENGINEERING DEPARTMENT

DATE: **September 21, 2022**

TO: **Chet Robinson, Senior Engineer**

FROM: **Stephen Manganiello, Contract Traffic Engineer**

CC: **Rob Blough, City Traffic Engineer**

SUBJECT: **PLN 22-0030 Villages at Junipero – Scoping Agreement Review 2**

Traffic Engineering has completed the review of PLN 22-0030 Villages at Junipero Scoping Agreement, dated September 20, 2022 and have no further comments.

If you have any questions on these comments please contact Stephen Manganiello, Contract Traffic Engineer, at stephen.manganiello@stctraffic.com

From:	Chet Robinson
To:	Russell Brown
Cc:	Orlando Hernandez; Steven Strapac; Daniel A Padilla
Subject:	RE: 14854 Village at Junipero (PLN 22-0030) Scoping Agreement
Date:	Thursday, September 22, 2022 5:28:30 PM
Attachments:	image002.png image007.png PLN 22-0030 Villages at Junipero_Scoping Agreement Review 2.pdf

Hi Russell,

Yes – Traffic gave it an expedited review and we do not have any additional comments. See attached review memo.

Thanks,

Chet Robinson, PE, GE | Senior Engineer
Public Works – Engineering Department
City of Menifee | 29844 Haun Road | Menifee, CA 92586
Direct: (951) 723-3879 | City Hall: (951) 672-6777 | Fax: (951) 679-3843
crobinson@cityofmenifee.us | cityofmenifee.us

From: Russell Brown <rbrown@cityofmenifee.us>
Sent: Thursday, September 22, 2022 5:22 PM
To: Chet Robinson <crobinson@cityofmenifee.us>
Cc: Orlando Hernandez <ohernandez@cityofmenifee.us>; Steven Strapac <sstrapac@cityofmenifee.us>; Daniel A Padilla <dapadilla@cityofmenifee.us>
Subject: FW: 14854 Village at Junipero (PLN 22-0030) Scoping Agreement
Importance: High

Hey Chet-
Just confirming the attached TA Scope was sent out for review for the Village at Junipero. Thanks.

Regards,

Russell J. Brown, AICP | Senior Planner
Community Development Department
"Creating a HEALTHY, VIBRANT, and CONNECTED community for everyone."
29844 Haun Road | Menifee, CA 92586
City Hall: (951) 672-6777 | Dir. (951) 723-3745




Connect with us on social media:

From: Russell Brown
Sent: Tuesday, September 20, 2022 10:07 AM
To: Chet Robinson <crobinson@cityofmenifee.us>
Cc: Orlando Hernandez <ohernandez@cityofmenifee.us>; Steven Strapac <sstrapac@cityofmenifee.us>; Daniel A Padilla <dapadilla@cityofmenifee.us>
Subject: FW: 14854 Village at Junipero (PLN 22-0030) Scoping Agreement
Importance: High

Hey Chet-
Please forward this along for review; I'd like to request a rush on the review if possible. Thanks.

Regards,

Russell J. Brown, AICP | Senior Planner
Community Development Department
"Creating a HEALTHY, VIBRANT, and CONNECTED community for everyone."
29844 Haun Road | Menifee, CA 92586
City Hall: (951) 672-6777 | Dir. (951) 723-3745




Connect with us on social media:

From: Charlene So <cso@urbanxroads.com>
Sent: Tuesday, September 20, 2022 9:45 AM
To: Russell Brown <rbrown@cityofmenifee.us>
Cc: Alex So <aso@urbanxroads.com>; Chet Robinson <crobinson@cityofmenifee.us>; Orlando Hernandez <ohernandez@cityofmenifee.us>; Kent Norton <knorton@migcom.com>
Subject: JN:14854 Village at Junipero (PLN 22-0030) Scoping Agreement
Importance: High

[CAUTION]: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Russell,

The attached scoping agreement has been revised to address all of the City's comments. Please let me know if you have any questions. Also, if I can get confirmation on the attached revised study area so that I can get these traffic count scheduled that would be much appreciated. Thanks!

Regards,

CHARLENE SO, PE
Principal
(949) 861-0177 Mobile
urbanxroads.com

From: Russell Brown rbrown@cityofmenifee.us
Sent: Thursday, September 8, 2022 7:24 AM
To: Kent Norton <knorton@migcom.com>
Cc: Alex So <aso@urbanxroads.com>; Chet Robinson <crobinson@cityofmenifee.us>; Orlando Hernandez <ohernandez@cityofmenifee.us>; Charlene So <cso@urbanxroads.com>
Subject: RE: JN:14854 Village at Junipero (PLN 22-0030) Scoping Agreement

Good morning Kent-
Attached are city comments regarding the traffic scoping and other traffic related comments. I apologize for the delay. Please let me or someone from the Engineering team know if you have questions or would like to discuss further.
Furthermore, the CEQA contract has yet to be updated as you had originally requested to cover a change in traffic review. I wanted to get all traffic comments to determine if the review cost would fluctuate before amending the contract. Let me know if you'd like to discuss further and if the contract augment amount has changed (increased or decreased) from what was previously discussed. I will need to have a follow up conversation with the project applicant about amending the contract. Thanks.

Regards,

Russell J. Brown, AICP | Senior Planner
Community Development Department
"Creating a HEALTHY, VIBRANT, and CONNECTED community for everyone."
29844 Haun Road | Menifee, CA 92586

City Hall: (951) 672-6777 | Dir. (951) 723-3745





Connect with us on social media:

From: Charlene So <cso@urbanxroads.com>
Sent: Monday, August 29, 2022 3:45 PM
To: Russell Brown <rbrown@cityofmenifee.us>; Rob Blough <rblough@cityofmenifee.us>
Cc: Kent Norton <knorton@migcom.com>; Alex So <aso@urbanxroads.com>; Chet Robinson <crobinson@cityofmenifee.us>
Subject: RE: JN:14854 Village at Junipero (PLN 22-0030) Scoping Agreement

[CAUTION]: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Russell,

Following up on the status of the City's review of the scoping agreement. Let me know if you need anything else from me. Thanks!

Regards,



CHARLENE SO, PE
Principal
(949) 861-0177 Mobile
urbanxroads.com

From: Russell Brown <rbrown@cityofmenifee.us>
Sent: Tuesday, August 2, 2022 9:53 AM
To: Charlene So <cso@urbanxroads.com>; Rob Blough <rblough@cityofmenifee.us>
Cc: Kent Norton <knorton@migcom.com>; Alex So <aso@urbanxroads.com>; Chet Robinson <crobinson@cityofmenifee.us>
Subject: RE: JN:14854 Village at Junipero (PLN 22-0030) Scoping Agreement

Hello Charlene-

Our traffic team will review the scoping agreement and provide feedback within the next 2 weeks. I have attached the latest cumulative city projects list from March 2022. This will be updated later this month as we do so on a quarterly basis. Thanks.

Regards,

Russell J. Brown, AICP | Senior Planner
Community Development Department
"Creating a HEALTHY, VIBRANT, and CONNECTED community for everyone."
29844 Haun Road | Menifee, CA 92586
City Hall: (951) 672-6777 | Dir. (951) 723-3745





Connect with us on social media:

From: Charlene So <cso@urbanxroads.com>
Sent: Tuesday, August 2, 2022 1:54 AM
To: Rob Blough <rblough@cityofmenifee.us>
Cc: Russell Brown <rbrown@cityofmenifee.us>; Kent Norton <knorton@migcom.com>; Alex So <aso@urbanxroads.com>
Subject: JN:14854 Village at Junipero (PLN 22-0030) Scoping Agreement
Importance: High

[CAUTION]: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Rob,

Attached for the City's review is the scoping agreement for the proposed Village at Junipero project. Please let me know if you have any questions or comments.

Hi Russell – could you confirm the list of cumulative projects or provide an updated list for us to use to update?

Thank you!

Regards,



CHARLENE SO, PE
Principal
(949) 861-0177 Mobile
urbanxroads.com

Attachment A: Project Scoping Form

This scoping form shall be completed and submitted to the City of Menifee to assist in identifying infrastructure improvements that may be required to support traffic from the proposed project.

Project Identification:

Case Number:	PLN22-0030
Related Cases:	
SP No.	
EIR No.	
GPA No.	
CZ No.	
Project Name:	Village at Junipero
Project Address:	southwest corner of Menifee Road and Heritage Lakes Drive
Project Opening Year:	2025
Project Description:	240 market-rate apartments (multifamily residential)

	Consultant:	**Developer:**
Name:	Urban Crossroads - Charlene So	Representative: Kent Norton, MIG
Address:	1133 Camelback St, #8329	1650 Spurce Street, Suite 106
	Newport Beach, CA 92658	Riverside, CA 92507
Telephone:	949-861-0177	951-787-9222
Fax/Email:	cso@urbanxroads.com	

Trip Generation Information:

Trip Generation Data Source: ITE, Trip Generation Manual (11th Edition, 2021)

Current General Plan Land Use: 8.14-14 du/ac Residential

Proposed General Plan Land Use: 8.14-14 du/ac Residential

Current Zoning: Medium Density Residential (MDR)

Proposed Zoning: Medium Density Residential (MDR)

	Existing Trip Generation			Proposed Trip Generation		
	In	Out	Total	In	Out	Total
AM Trips				23	73	96
PM Trips				77	45	122

Trip Internalization: ☐ Yes ☒ No (_____% Trip Discount)

Pass-By Allowance: ☐ Yes ☒ No (_____% Trip Discount)

Potential Screening Checks

Is your project screened from specific analyses (see Page 5 of the guidelines related to LOS assessment).

Is the project screened from VMT assessment? ☒ Yes ☐ No

VMT screening justification (see Pages 10-12 of the guidelines): If a project is proposed to be entirely residential uses, daily home-based production VMT per captia can be estimated to determine the significance of impact. Based on the residential home-based work VMT, the WRCOG screening tool screenshot (see attached), project consistency with the General Plan, the Project screens out from needing further VMT analysis.

VMT Analysis Scoping

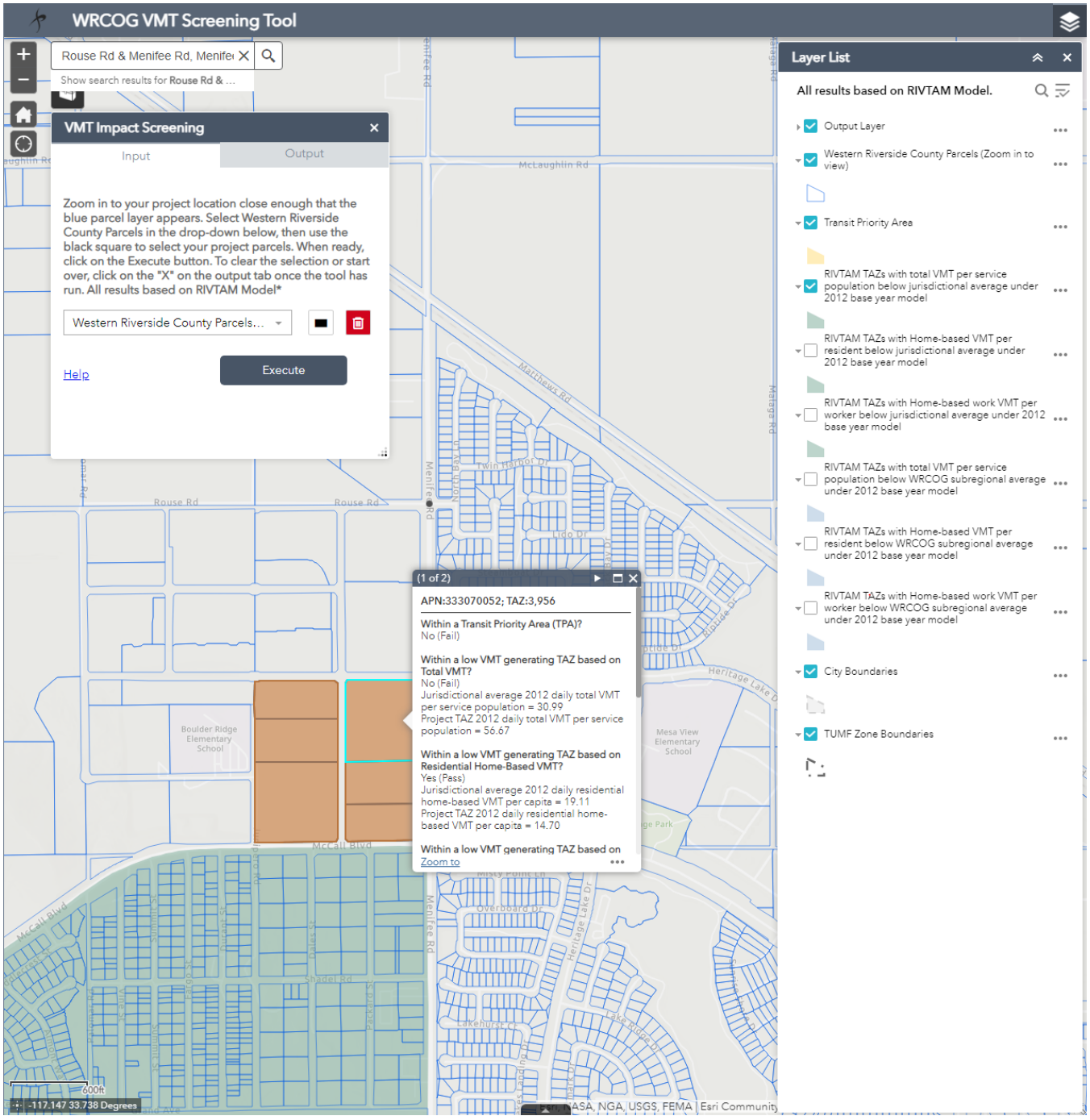
VMT memo will be updated

For projects that are not screened, identify the following:

- Travel Demand Forecasting Model Used Not Applicable
- Attach WRCOG Screening VMT Assessment output or describe why it is not appropriate for use
- Attach proposed Model Land Use Inputs and Assumed Conversion Factors (attach)

Signatures

TIA Preparer: Charlene So City (Approved by): _____


WRCOG VMT Screening Tool
Rouse Rd & Menifee Rd, Menife
Show search results for Rouse Rd & ...
VMT Impact Screening
Input
Output
Zoom in to your project location close enough that the blue parcel layer appears. Select Western Riverside County Parcels in the drop-down below, then use the black square to select your project parcels. When ready, click on the Execute button. To clear the selection or start over, click on the "X" on the output tab once the tool has run. All results based on RIVTAM Model*
Western Riverside County Parcels...
Help
Execute
(1 of 2)
APN:333070052; TAZ:3,956
Within a Transit Priority Area (TPA)?
No (Fail)
Within a low VMT generating TAZ based on Total VMT?
No (Fail)
Jurisdictional average 2012 daily total VMT per service population = 30.99
Project TAZ 2012 daily total VMT per service population = 56.67
Within a low VMT generating TAZ based on Residential Home-Based VMT?
Yes (Pass)
Jurisdictional average 2012 daily residential home-based VMT per capita = 19.11
Project TAZ 2012 daily residential home-based VMT per capita = 14.70
Within a low VMT generating TAZ based on
Zoom to
Layer List
All results based on RIVTAM Model.
Output Layer
Western Riverside County Parcels (Zoom in to view)
Transit Priority Area
RIVTAM TAZs with total VMT per service population below jurisdictional average under 2012 base year model
RIVTAM TAZs with Home-based VMT per resident below jurisdictional average under 2012 base year model
RIVTAM TAZs with Home-based work VMT per worker below jurisdictional average under 2012 base year model
RIVTAM TAZs with total VMT per service population below WRCOG subregional average under 2012 base year model
RIVTAM TAZs with Home-based VMT per resident below WRCOG subregional average under 2012 base year model
RIVTAM TAZs with Home-based work VMT per worker below WRCOG subregional average under 2012 base year model
City Boundaries
TUMF Zone Boundaries
Rouse Rd
McLaughlin Rd
Matthews Rd
Twin Harbor Dr
Menifee Rd
Heritage Lake Dr
Boulder Ridge Elementary School
Mesa View Elementary School
McCall Blvd
Overboard Dr
Lakehurst Ct
Shadel Rd
600ft
-117.147 33.738 Degrees
ASA, NGA, USGS, FEMA | Esri Community

September 20, 2022

Mr. Rob Blough
City of Menifee
29714 Haun Road
Menifee, CA 92586

VILLAGE AT JUNIPERO (PLN22-0030) TRAFFIC ANALYSIS SCOPING AGREEMENT (REVISED)

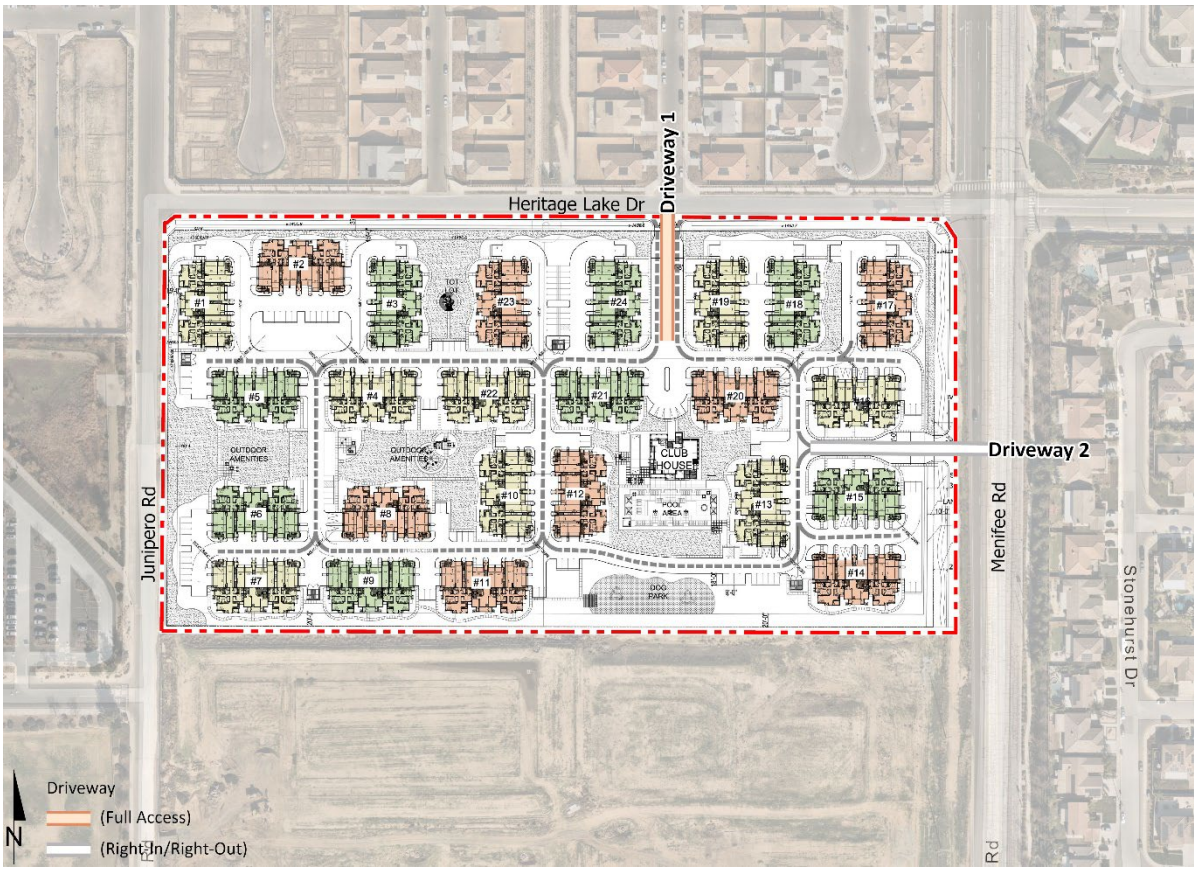
Mr. Rob Blough,

The firm of Urban Crossroads, Inc. is pleased to submit this scoping letter regarding the traffic analysis for Village at Junipero development (**Project**), which is located north of McCall Boulevard, east of Junipero Road, south of Heritage Lakes Drive, and west of Menifee Road in the City of Menifee. This letter describes the proposed Project trip generation, trip distribution, and analysis methodology, which have been used to establish the draft proposed Project study area and analysis locations. The following scope of work is based on the City's Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (updated January 2022) (**City Guidelines**).

PROPOSED PROJECST

The Project is proposed to consist of the development of 240 market-rate apartments (multifamily (low-rise, 2-3 floors) residential) (see Exhibit 1). The proposed apartment complex consists of 24 buildings containing 10 units per building with individual unit sizes ranging from one to three bedrooms and each unit would contain one to two car garages. The proposed Project is anticipated to have an opening year of 2025. Access is proposed along Heritage Lakes Drive at a new primary driveway aligning with Settlement Street and on Menifee Road with a new proposed right-in/right-out driveway.

EXHIBIT 1: PRELIMINARY SITE PLAN



TRIP GENERATION

Trip generation represents the amount of traffic that is attracted and produced by a development and is based upon the specific land uses planned for a given project. In order to develop the traffic characteristics of the proposed project, trip-generation statistics published in the Institute of Transportation Engineers (ITE) Trip Generation Manual (11th Edition, 2021) was used to estimate the trip generation. Trip generation rates are summarized on Table 1.

The trip generation summary illustrating daily and peak hour trip generation estimates for the proposed Project are shown on Table 1. The proposed Project is anticipated to generate 1,618 two-way vehicle trip-ends per day with 96 AM peak hour trips and 122 PM peak hour (see Table 1).

TABLE 1: PROJECT TRIP GENERATION SUMMARY

Land Use[1]	ITE LU Code	Units[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Trip Generation Rates:									
Multifamily (Low-Rise) Residential	220	DU	0.10	0.30	0.40	0.32	0.19	0.51	6.74

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 11th Edition (2021).

[2] DU = Dwelling Units

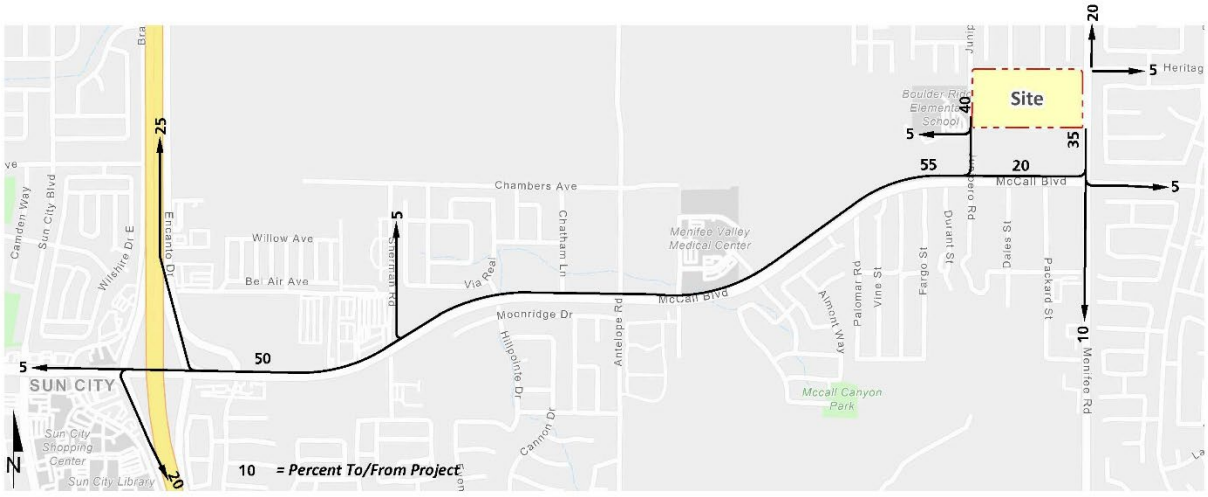
Land Use	Quantity	Units[1]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Trip Generation Summary:									
Village at Junipero	240	DU	23	73	96	77	45	122	1,618

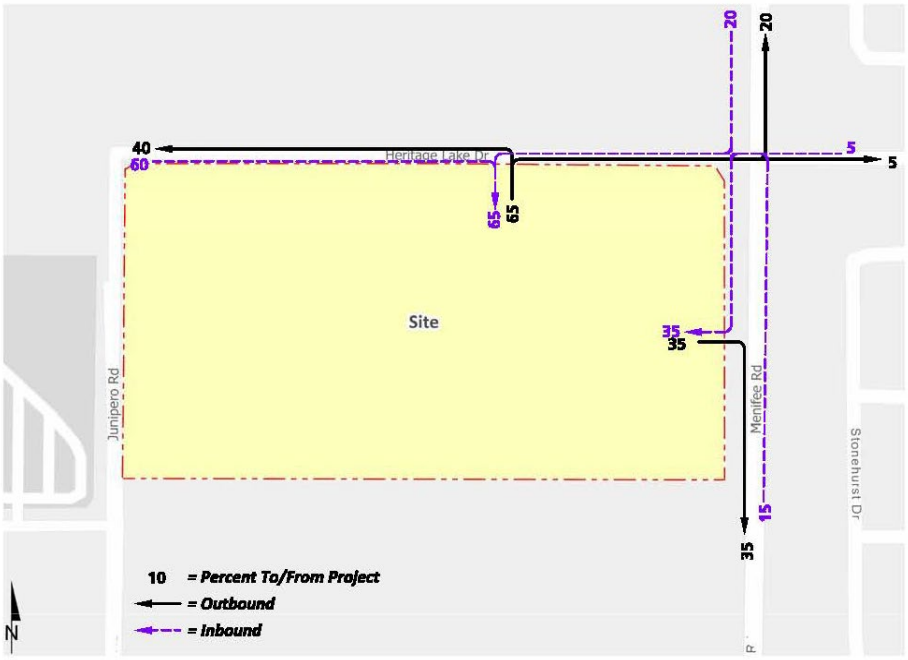
[1] DU = Dwelling Units

TRIP DISTRIBUTION

The Project trip distribution represents the directional orientation of traffic to and from the Project site. Trip distribution is the process of identifying the probable destinations, directions or traffic routes that will be utilized by Project traffic. The potential interaction between the planned land uses and surrounding regional access routes are considered, to identify the route where the Project traffic would distribute. Exhibit 2 shows the Project trip distribution patterns.

EXHIBIT 2: PROJECT TRIP DISTRIBUTION





ANALYSIS SCENARIOS

Consistent with the City's TIA Guidelines, intersection analysis will be provided for the following scenarios:

- Existing (2022) Conditions
- Existing plus Project
- Opening Year Cumulative (2025) Without Project
- Opening Year Cumulative (2025) With Project

All study area intersections will be evaluated using the Highway Capacity Manual (HCM) 6th Edition analysis methodology.

STUDY AREA INTERSECTIONS

Based on the Project's anticipated travel patterns and trip generation characteristics, the following study area intersection locations shown on Exhibit 3 and listed below were selected for analysis (where the Project would add 50 or more peak hour trips):

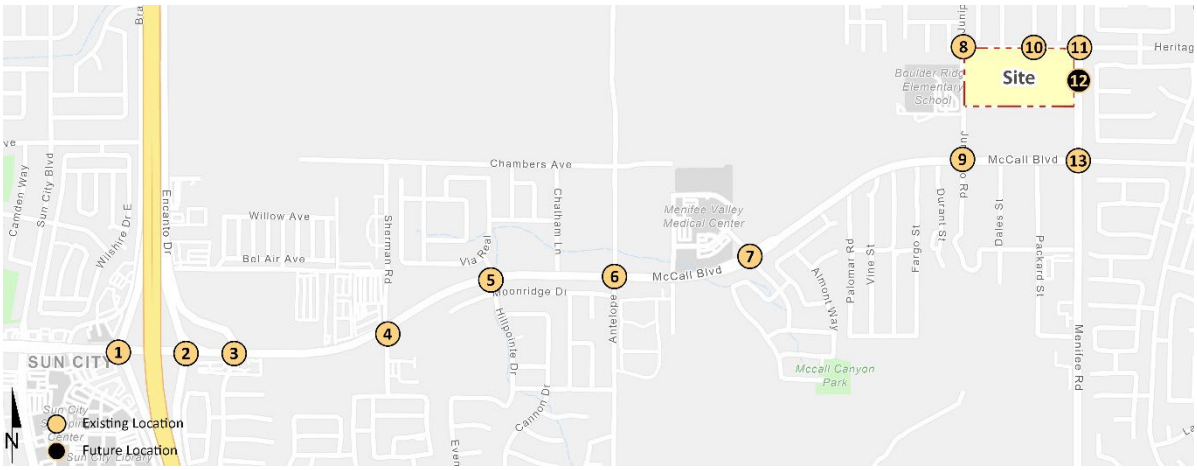
ID	Intersection
1	I-215 SB Ramps & McCall Bl.
2	I-215 NB Ramps & McCall Bl.
3	Encanto Dr. & McCall Bl.
4	Sherman Rd. & McCall Bl.
5	Via Entrada/Hillpointe Dr. & McCall Bl.
6	Antelope Rd. & McCall Bl.
7	Oak Hurst Av. & McCall Bl.
8	Junipero Rd. & Heritage Lakes Dr.
9	Junipero Rd. & McCall Bl.
10	Settlement St./Driveway 1 & Heritage Lakes Dr.
11	Menifee Rd. & Heritage Lakes Dr.
12	Menifee Rd. & Driveway 2
13	Menifee Rd. & McCall Bl.

STUDY AREA ROADWAY SEGMENTS

The following study area roadway segments listed below were selected for analysis (where the Project would contribute 500 or more daily trips):

ID	Roadway Segment
1	McCall Bl. between I-215 Freeway and Encanto Dr.
2	McCall Bl. between Encanto Dr. & Sherman Rd.
3	McCall Bl. between Oak Hurst Av. & Junipero Rd.
4	McCall Bl. between Junipero Rd. & Menifee Rd.
5	Junipero Rd. between Heritage Lake Dr. & McCall Bl.
6	Heritage Lakes Drive, West of Menifee Road
7	Menifee Road, South of Heritage Lakes Drive

EXHIBIT 3: STUDY AREA



EXISTING COUNT DATA

As local schools are back in session (with in-person instruction), we are proposing to conduct new traffic counts on a typical weekday when local schools are open and operating on normal bell schedules. No additional adjustments are proposed for the purposes of establishing the existing baseline conditions. Traffic counts will be conducted when the local schools return for the 2022-2023 school year (the first full week is August 15, 2022).

LEVEL OF SERVICE (LOS) CRITERIA

Per Policy C-1.2 of the City of Menifee General Plan, the following LOS will be utilized for study area intersections located within the City: Require development to mitigate its traffic impacts and achieve a peak hour Level of Service (LOS) D or better at intersections, except at constrained intersections at close proximity to the I-215 where LOS E may be permitted.

GENERAL PLAN CONSISTENCY REQUIREMENTS

Project related impacts shall be clearly identified as direct or cumulative in the TIA report. Only feasible improvements shall be recommended in the TIA report. Consideration should be made for existing right-of-way, availability of receiving lanes for additional thru or turn lanes, environmental constraints, utility conflicts, and economically feasible improvement costs. Analysis of the recommended improvements shall be provided to demonstrate the proposed improvement will reduce the project impact to LOS to meet LOS standards.

All studies that propose increasing the number of travel lanes on a roadway or intersections to improve LOS conditions, either beyond existing conditions or for General Plan conditions beyond what is planned for that segment shall clearly identify the impacts associated with such a change. Exhibits and preliminary cost estimates must be provided to show the feasibility of the improvement.

The TIA shall identify whether or not the recommended improvements to achieve LOS standards are within the scope of a funding mechanism. The funding mechanism identified shall also include the availability of the funds and anticipated construction dates (if available). A fair share contribution toward the identified funding mechanism shall be calculated in order to reduce identified cumulative project impacts.

LOS improvements may also include connectivity improvements for bicycles and pedestrians. Improvements along the project frontage shall include pedestrian and bicycle facilities in compliance with the goals and policies established in the City's General Plan and mandated through the Complete Streets Act of 2008. The project should clearly identify pedestrian and bicycle facilities within the community that connect the development to existing sidewalk and bicycle facilities. Project is 100% responsible for improvements along the Project's frontage.

LOS improvements that are determined to be infeasible should be discussed in the TIA and the factors resulting in the improvement being infeasible should be identified.

AMBIENT GROWTH

Consistent with other studies performed in the area, an ambient growth rate of 2.0% per year is proposed for the study area intersections to approximate background traffic growth not identified by nearby cumulative development projects. The rate will be compounded over a 3-year period (i.e., 1.02^{3years} = 1.0612 or 6.12% for 2025).

FAIR SHARE CALCULATION METHODOLOGY

Improvements found to be included in the City of Menifee's Development Impact Fee (DIF) program and Western Riverside Council of Governments Transportation Uniform Mitigation Fee (TUMF), will be identified as such. For improvements that do not appear to be in either of the pre-existing fee programs, a fair share financial contribution based on the Project's fair share impact may be imposed in order to mitigate the Project's share of impacts in lieu of construction. The Project's fair share cost of improvements would be determined based on the following equation, which is the ratio of Project traffic to new traffic, where new traffic is total future traffic less existing baseline traffic:

Project Fair Share % = Project Traffic / (OYC With Project Total Traffic – Existing Traffic)

SIGNAL TIMING

It is requested that the City provide any signal timing that should be considered for signalized study area intersections within the City. Traffic signal timing for the Caltrans facilities have already been obtained.

CUMULATIVE PROJECTS

The cumulative projects are listed on Table 2 and are shown graphically on Exhibit 4. It is requested that the City provide an updated list of cumulative development projects for inclusion in the traffic study.

SPECIAL ISSUES

The following special issues will also be addressed:

- *Site Access Evaluation:* The turn pocket lengths will be determined through peak hour traffic simulations developed using Synchro and SimTraffic software in an effort to identify the required storage capacity for turn lanes at each Project driveway. Specifically, the queuing analysis will be conducted in order to determine the necessary turn pocket storage lengths needed to accommodate peak hour queues at the Project driveways. The site access evaluation will also address the need for installing a raised median along Menifee Road to physically restrict Driveway 2 to right-in/right-out movements only.
- *Sight Distance:* The driveways will be assessed in order to ensure the sight distance meets the City's standards.
- *Gate Stacking:* The traffic study will analyze peak hour queues at all gated entrances to ensure that there is sufficient storage capacity on-site for vehicles waiting while gates open. This analysis may require design of a turnaround prior to the gate and/or other improvements to avoid queuing of vehicles onto public roadways.
- *Traffic Signal Warrant:* A traffic signal warrant analysis will be prepared for all analysis scenarios for the unsignalized, full access study area intersections.
- *Vehicle Miles Traveled*: VMT will be addressed under separate cover. A VMT memo will be prepared summarizing the screening assessment.

If you have any questions or comments, I can be reached at cso@urbanxroads.com.

Respectfully submitted,

URBAN CROSSROADS, INC.

Charlene So

Charlene So, PE
Principal

EXHIBIT 4: CUMULATIVE DEVELOPMENT LOCATION MAP

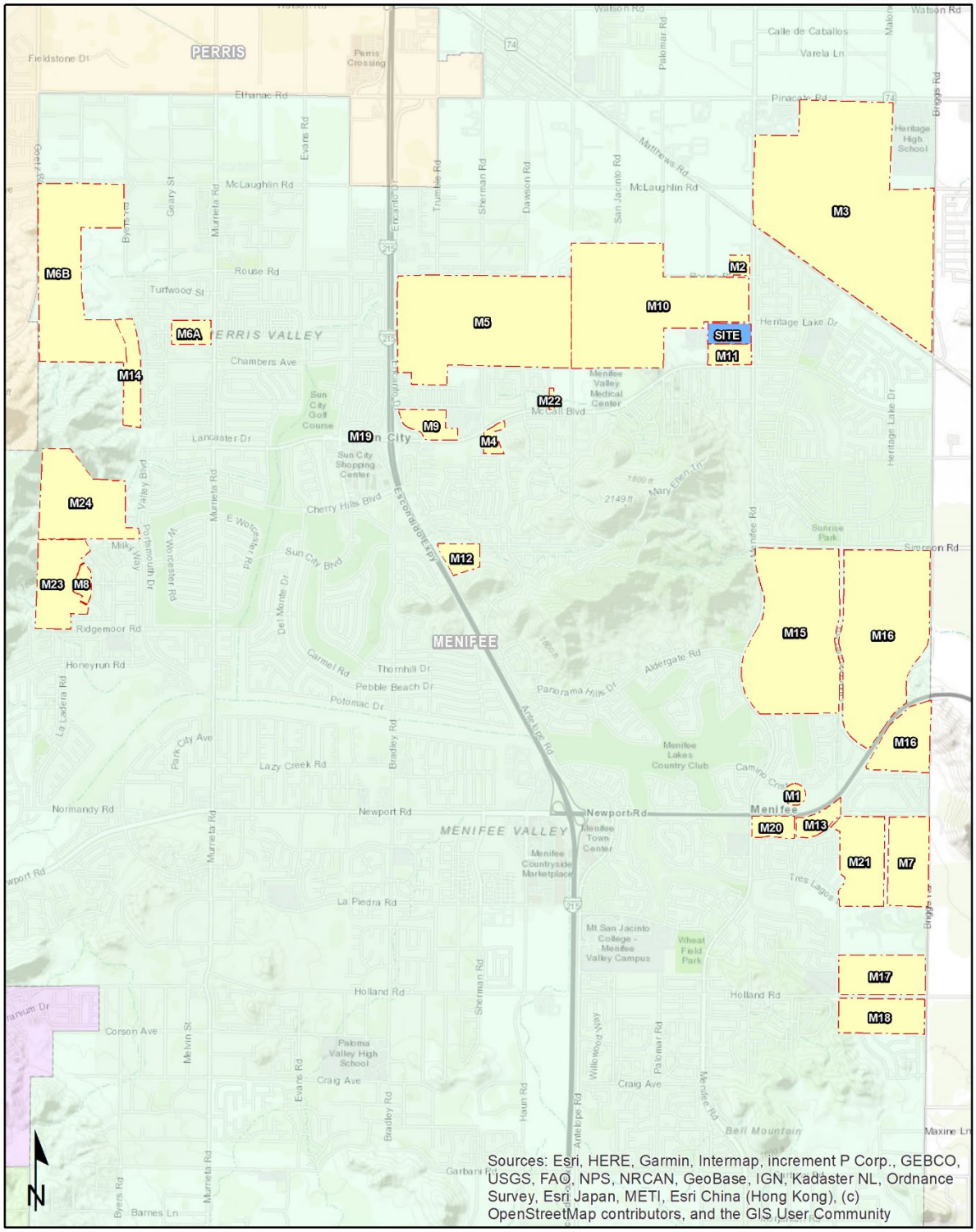


TABLE 2: CUMULATIVE DEVELOPMENT LAND USE SUMMARY

No.	Project Name	Land Use	Quantity[1]
City of Menifee:			
M1	PM 2018-118 (Newport and Menifee Commercial)	Shopping Center	138.091 TSF
M2	TTM No. 38346	Multifamily Residential	162 DU
M3	Menifee Valley Specific Plan	Single Family Residential	1,711 DU
		Mixed-Use	590 Acres
M4	PP 2016-124	Fast-food w/ Drive-Thru	6.200 TSF
		Retail	1.000 TSF
		Gas Station & Market / Car Wash	12 VFP
M5	Legado Specific Plan	Single Family Residential	1,061 DU
		Community Center	10 TSF
		Sprots Park	11.23 TSF
		Shopping Center	225 TSF
M6A	TR 32314	Single Family Residential	33 DU
M6B	Cimarron Ridge	Single Family Residential	756 DU
M7	TR 2016-285, SP 2016-286, GPA 2016-287, CZ 2016-288	Single Family Residential	305 DU
M8	TR 28859-1	Single Family Residential	161 DU
M9	Menifee North Shopping Center	Free-Standing Discount Superstore	200.000 TSF
		Bank with Drive-through Window	5.500 TSF
		Fast-food w/ Drive-Thru	6.700 TSF
		Shopping Center	10.000 TSF
		Gas Station & Market / Car Wash	16 VFP
M10	TR 29835	Single Family Residential	543 DU
	TR 31098	Single Family Residential	264 DU
M11	CUP 03549	Self-Storage Facility	152.893 TSF
		Grocery Store	45.000 TSF
		Pharmacy	14.600 TSF
		Shopping Center	11.500 TSF
		Restaurants	6.100 TSF
		Fast-food w/ Drive-Thru	3.500 TSF
		Gas Station & Market / Car Wash	16 VFP

No.	Project Name	Land Use	Quantity[1]
M12	PP 19469R1	Senior Apartments	221 DU
M13	GPA 2016-061; SPA -062; TR -063	Single Family Residential	54 DU
M14	2015-211	Single Family Residential	75 DU
M15	TR 31582	Single Family Residential (50% Built)	140 DU
	TR 32100	Single Family Residential	170 DU
M16	TR 32101	Single Family Residential	197 DU
	TR 32102	Single Family Residential	272 DU
M17	Nautical Cove Residential	Single Family Residential	235 DU
M18	Menifee Heights - TR32277	Single Family Residential	359 DU
		Active Parks	10.2 AC
M19	CUP 2016-110	Fast-food w/ Drive-Thru	2.400 DU
M20	Newport & Menifee Retail	Shopping Center	138.091 TSF
M21	The Lakes (TR 30422 / SP 247 Amendment 1)	Single Family Residential (75% Built)82	327 DU
M22	CUP 2016-183	Assisted Living	45.246 TSF
		Mixed Office/Retail	10.368 TSF
M23	TR 28859	Single Family Residential (65% Built)	86 DU
M24	TTM 31456	Single Family Residential	177 DU

[1] TSF = Thousand Square Feet; DU = Dwelling Unit; AC = Acres; STU = Students; VFP = Vehicle Fueling Positions

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APPENDIX 1.2: SITE ADJACENT QUEUES

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Intersection: 10: Driveway 1/Settlement St. & Heritage Lakes Dr.

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	18	21	41	45
Average Queue (ft)	1	1	24	16
95th Queue (ft)	8	12	48	42
Link Distance (ft)	782	413	22	157
Upstream Blk Time (%)			3	
Queuing Penalty (veh)			2	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 12: Menifee Rd. & Driveway 2

Movement	EB
Directions Served	R
Maximum Queue (ft)	44
Average Queue (ft)	18
95th Queue (ft)	44
Link Distance (ft)	35
Upstream Blk Time (%)	2
Queuing Penalty (veh)	1
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 14: Driveway 1

Movement	NB	SB
Directions Served	T	T
Maximum Queue (ft)	41	32
Average Queue (ft)	24	14
95th Queue (ft)	48	39
Link Distance (ft)	168	22
Upstream Blk Time (%)		1
Queuing Penalty (veh)		0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 15: Driveway 2

Movement	EB	WB
Directions Served	T	T
Maximum Queue (ft)	48	31
Average Queue (ft)	18	3
95th Queue (ft)	45	18
Link Distance (ft)	155	35
Upstream Blk Time (%)		0
Queuing Penalty (veh)		0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 2

Intersection: 10: Driveway 1/Settlement St. & Heritage Lakes Dr.

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	31	34	31	31
Average Queue (ft)	4	3	18	6
95th Queue (ft)	20	19	42	27
Link Distance (ft)	782	413	22	157
Upstream Blk Time (%)			2	
Queuing Penalty (veh)			1	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 12: Menifee Rd. & Driveway 2

Movement	EB	SB
Directions Served	R	T
Maximum Queue (ft)	34	11
Average Queue (ft)	15	0
95th Queue (ft)	40	8
Link Distance (ft)	35	317
Upstream Blk Time (%)	1	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 14: Driveway 1

Movement	NB	SB
Directions Served	T	T
Maximum Queue (ft)	48	39
Average Queue (ft)	19	27
95th Queue (ft)	46	46
Link Distance (ft)	168	22
Upstream Blk Time (%)		4
Queuing Penalty (veh)		3
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 15: Driveway 2

Movement	EB	WB
Directions Served	T	T
Maximum Queue (ft)	31	32
Average Queue (ft)	14	11
95th Queue (ft)	38	35
Link Distance (ft)	155	35
Upstream Blk Time (%)		1
Queuing Penalty (veh)		0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 3

APPENDIX 3.1: TRAFFIC COUNTS – SEPTEMBER 2022

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Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951)268-6268

City of Menifee
N/S: I-215 Southbound Ramps
E/W: McCall Boulevard
Weather: Clear

File Name : 01_MEN_215S_McC AM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

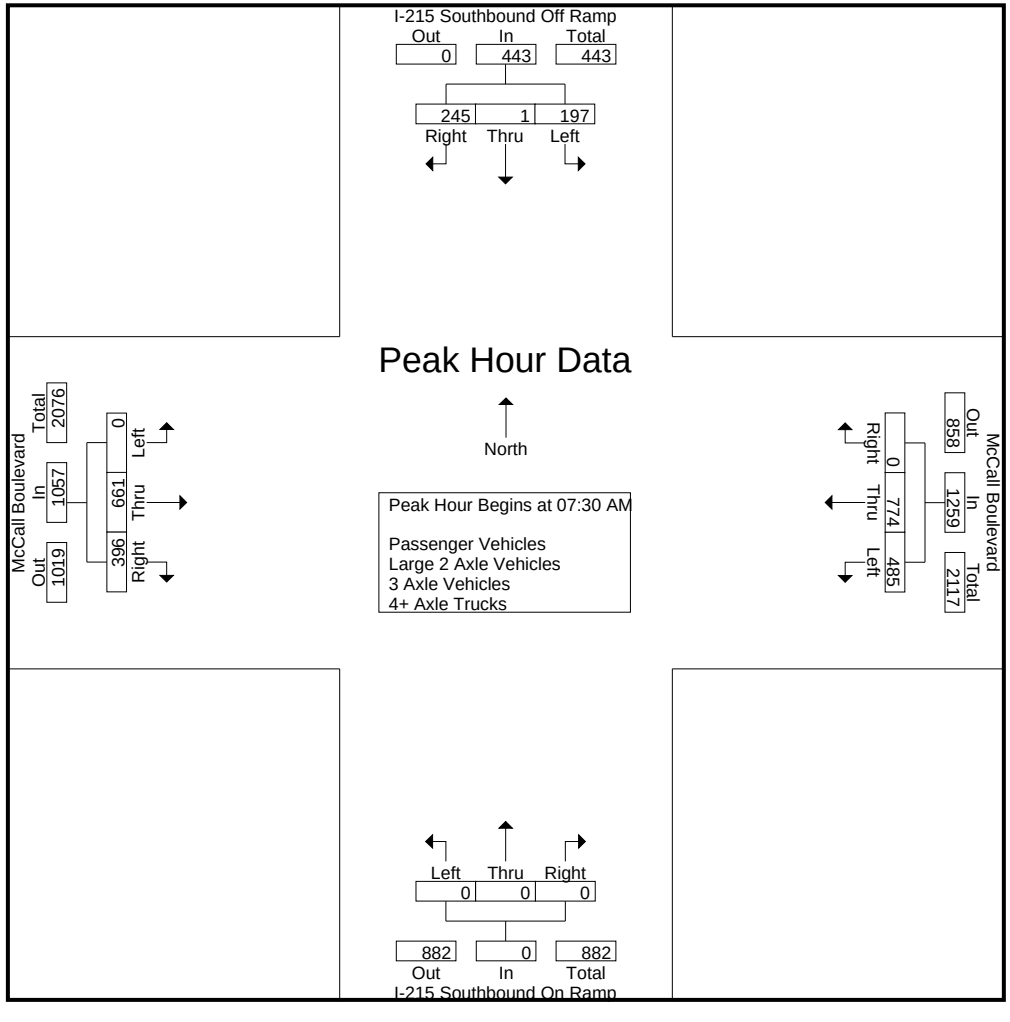
	I-215 Southbound Off Ramp Southbound					McCall Boulevard Westbound					I-215 Southbound On Ramp Northbound					McCall Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	42	0	35	23	77	124	85	0	0	209	0	0	0	0	0	0	132	89	0	221	23	507	530
07:15 AM	62	0	58	36	120	114	123	0	0	237	0	0	0	0	0	0	134	110	0	244	36	601	637
07:30 AM	76	1	53	32	130	132	149	0	0	281	0	0	0	0	0	0	137	105	0	242	32	653	685
07:45 AM	38	0	61	39	99	132	198	0	0	330	0	0	0	0	0	0	182	100	0	282	39	711	750
Total	218	1	207	130	426	502	555	0	0	1057	0	0	0	0	0	0	585	404	0	989	130	2472	2602
08:00 AM	48	0	65	37	113	99	209	0	0	308	0	0	0	0	0	0	176	96	0	272	37	693	730
08:15 AM	35	0	66	44	101	122	218	0	0	340	0	0	0	0	0	0	166	95	0	261	44	702	746
08:30 AM	40	0	80	46	120	102	182	0	0	284	0	0	0	0	0	0	137	95	0	232	46	636	682
08:45 AM	33	1	70	44	104	71	183	0	0	254	0	0	0	0	0	0	124	70	0	194	44	552	596
Total	156	1	281	171	438	394	792	0	0	1186	0	0	0	0	0	0	603	356	0	959	171	2583	2754
Grand Total	374	2	488	301	864	896	1347	0	0	2243	0	0	0	0	0	0	1188	760	0	1948	301	5055	5356
Apprch %	43.3	0.2	56.5			39.9	60.1	0			0	0	0			0	61	39					
Total %	7.4	0	9.7		17.1	17.7	26.6	0		44.4	0	0	0		0	0	23.5	15		38.5	5.6	94.4	
Passenger Vehicles	350	1	459		1097	876	1311	0		2187	0	0	0		0	0	1141	746		1887	0	0	5171
% Passenger Vehicles	93.6	50	94.1	95.3	94.2	97.8	97.3	0	0	97.5	0	0	0	0	0	0	96	98.2	0	96.9	0	0	96.5
Large 2 Axle Vehicles	10	0	20		42	14	25	0		39	0	0	0		0	0	33	10		43	0	0	124
% Large 2 Axle Vehicles	2.7	0	4.1	4	3.6	1.6	1.9	0	0	1.7	0	0	0	0	0	0	2.8	1.3	0	2.2	0	0	2.3
3 Axle Vehicles	0	1	3		5	1	5	0		6	0	0	0		0	0	11	0		11	0	0	22
% 3 Axle Vehicles	0	50	0.6	0.3	0.4	0.1	0.4	0	0	0.3	0	0	0	0	0	0	0.9	0	0	0.6	0	0	0.4
4+ Axle Trucks	14	0	6		21	5	6	0		11	0	0	0		0	0	3	4		7	0	0	39
% 4+ Axle Trucks	3.7	0	1.2	0.3	1.8	0.6	0.4	0	0	0.5	0	0	0	0	0	0	0.3	0.5	0	0.4	0	0	0.7

	I-215 Southbound Off Ramp Southbound				McCall Boulevard Westbound				I-215 Southbound On Ramp Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	**76**	**1**	53	**130**	**132**	149	0	281	0	0	0	0	0	137	**105**	242	653
07:45 AM	38	0	61	99	132	198	0	330	0	0	0	0	0	**182**	100	**282**	**711**
08:00 AM	48	0	65	113	99	209	0	308	0	0	0	0	0	176	96	272	693
08:15 AM	35	0	**66**	101	122	**218**	0	**340**	0	0	0	0	0	166	95	261	702
Total Volume	197	1	245	443	485	774	0	1259	0	0	0	0	0	661	396	1057	2759
% App. Total	44.5	0.2	55.3		38.5	61.5	0		0	0	0		0	62.5	37.5		
PHF	.648	.250	.928	.852	.919	.888	.000	.926	.000	.000	.000	.000	.000	.908	.943	.937	.970

Counts Unlimited, Inc.
PO Box 1178
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City of Menifee
N/S: I-215 Southbound Ramps
E/W: McCall Boulevard
Weather: Clear

File Name : 01_MEN_215S_McC AM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 2



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City of Menifee
N/S: I-215 Southbound Ramps
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File Name : 01_MEN_215S_McC AM
Site Code : 05122850
Start Date : 9/27/2022

	I-215 Southbound Off Ramp Southbound				McCall Boulevard Westbound				I-215 Southbound On Ramp Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:15 AM				07:45 AM				07:00 AM				07:30 AM				
+0 mins.	62	0	58	120	**132**	198	0	330	0	0	0	0	0	137	**105**	242	
+15 mins.	**76**	**1**	53	**130**	99	209	0	308	0	0	0	0	0	**182**	100	**282**	
+30 mins.	38	0	61	99	122	**218**	0	**340**	0	0	0	0	0	176	96	272	
+45 mins.	48	0	**65**	113	102	182	0	284	0	0	0	0	0	166	95	261	
Total Volume	224	1	237	462	455	807	0	1262	0	0	0	0	0	661	396	1057	
% App. Total	48.5	0.2	51.3		36.1	63.9	0		0	0	0		0	62.5	37.5		
PHF	.737	.250	.912	.888	.862	.925	.000	.928	.000	.000	.000	.000	.000	.908	.943	.937	

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City of Menifee
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Site Code : 05122850
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Groups Printed- Passenger Vehicles

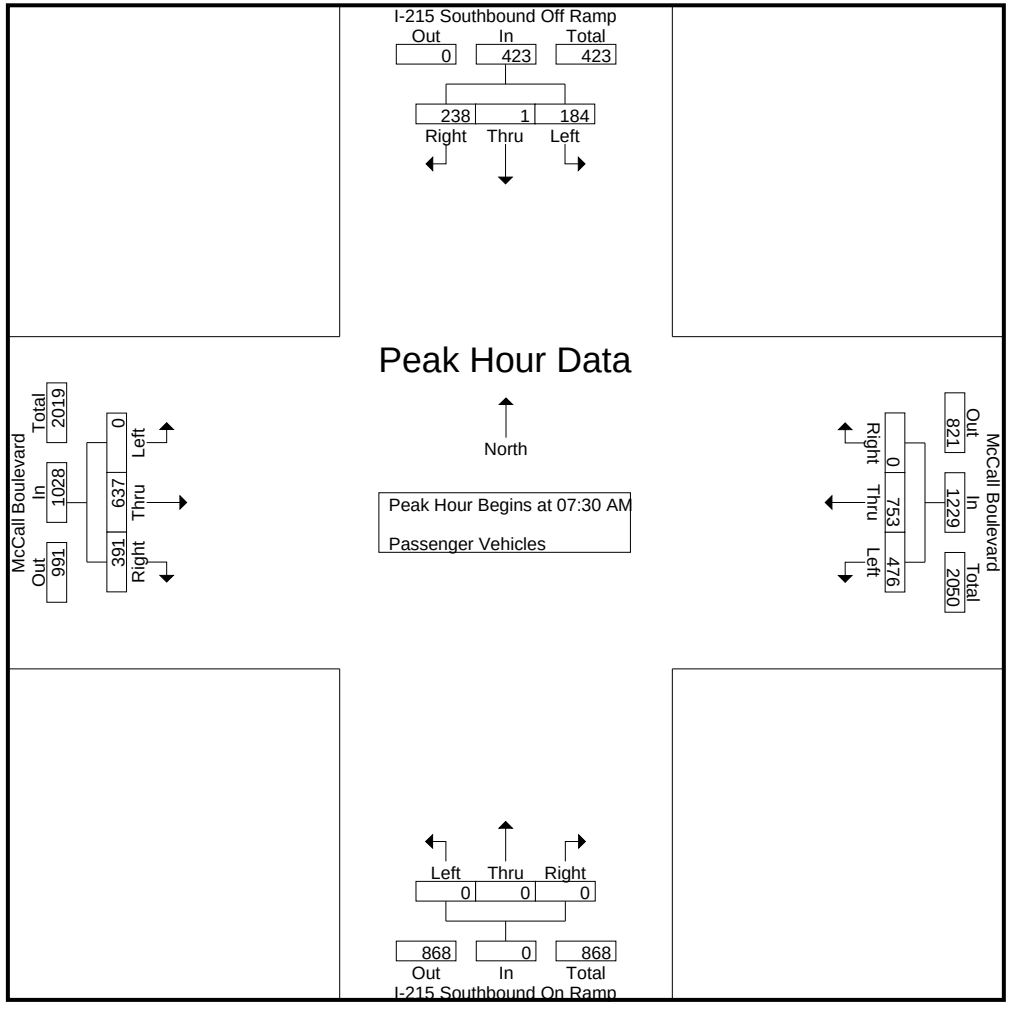
	I-215 Southbound Off Ramp Southbound					McCall Boulevard Westbound					I-215 Southbound On Ramp Northbound					McCall Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	39	0	28	21	67	120	82	0	0	202	0	0	0	0	0	0	121	87	0	208	21	477	498
07:15 AM	59	0	51	31	110	112	123	0	0	235	0	0	0	0	0	0	130	107	0	237	31	582	613
07:30 AM	73	1	50	31	124	131	144	0	0	275	0	0	0	0	0	0	137	104	0	241	31	640	671
07:45 AM	36	0	61	39	97	131	192	0	0	323	0	0	0	0	0	0	172	99	0	271	39	691	730
Total	207	1	190	122	398	494	541	0	0	1035	0	0	0	0	0	0	560	397	0	957	122	2390	2512
08:00 AM	44	0	63	36	107	96	205	0	0	301	0	0	0	0	0	0	172	94	0	266	36	674	710
08:15 AM	31	0	64	43	95	118	212	0	0	330	0	0	0	0	0	0	156	94	0	250	43	675	718
08:30 AM	38	0	76	44	114	99	175	0	0	274	0	0	0	0	0	0	129	93	0	222	44	610	654
08:45 AM	30	0	66	42	96	69	178	0	0	247	0	0	0	0	0	0	124	68	0	192	42	535	577
Total	143	0	269	165	412	382	770	0	0	1152	0	0	0	0	0	0	581	349	0	930	165	2494	2659
Grand Total	350	1	459	287	810	876	1311	0	0	2187	0	0	0	0	0	0	1141	746	0	1887	287	4884	5171
Apprch %	43.2	0.1	56.7			40.1	59.9	0			0	0	0			0	60.5	39.5					
Total %	7.2	0	9.4		16.6	17.9	26.8	0		44.8	0	0	0		0	0	23.4	15.3		38.6	5.6	94.4	

	I-215 Southbound Off Ramp Southbound				McCall Boulevard Westbound				I-215 Southbound On Ramp Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	**73**	**1**	50	**124**	**131**	144	0	275	0	0	0	0	0	137	**104**	241	640
07:45 AM	36	0	61	97	131	192	0	323	0	0	0	0	0	**172**	99	**271**	**691**
08:00 AM	44	0	63	107	96	205	0	301	0	0	0	0	0	172	94	266	674
08:15 AM	31	0	**64**	95	118	**212**	0	**330**	0	0	0	0	0	156	94	250	675
Total Volume	184	1	238	423	476	753	0	1229	0	0	0	0	0	637	391	1028	2680
% App. Total	43.5	0.2	56.3		38.7	61.3	0		0	0	0		0	62	38		
PHF	.630	.250	.930	.853	.908	.888	.000	.931	.000	.000	.000	.000	.000	.926	.940	.948	.970

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(951)268-6268

City of Menifee
N/S: I-215 Southbound Ramps
E/W: McCall Boulevard
Weather: Clear

File Name : 01_MEN_215S_McC AM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 2



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Corona, CA 92878
(951)268-6268

City of Menifee
N/S: I-215 Southbound Ramps
E/W: McCall Boulevard
Weather: Clear

File Name : 01_MEN_215S_McC AM
Site Code : 05122850
Start Date : 9/27/2022

	I-215 Southbound Off Ramp Southbound				McCall Boulevard Westbound				I-215 Southbound On Ramp Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:30 AM				07:30 AM				07:30 AM				07:30 AM				
+0 mins.	**73**	**1**	50	**124**	**131**	144	0	275	0	0	0	0	0	137	**104**	241	
+15 mins.	36	0	61	97	131	192	0	323	0	0	0	0	0	**172**	99	**271**	
+30 mins.	44	0	63	107	96	205	0	301	0	0	0	0	0	172	94	266	
+45 mins.	31	0	**64**	95	118	**212**	0	**330**	0	0	0	0	0	156	94	250	
Total Volume	184	1	238	423	476	753	0	1229	0	0	0	0	0	637	391	1028	
% App. Total	43.5	0.2	56.3		38.7	61.3	0		0	0	0		0	62	38		
PHF	.630	.250	.930	.853	.908	.888	.000	.931	.000	.000	.000	.000	.000	.926	.940	.948	

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City of Menifee
N/S: I-215 Southbound Ramps
E/W: McCall Boulevard
Weather: Clear

File Name : 01_MEN_215S_McC AM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 1

Groups Printed- Large 2 Axle Vehicles

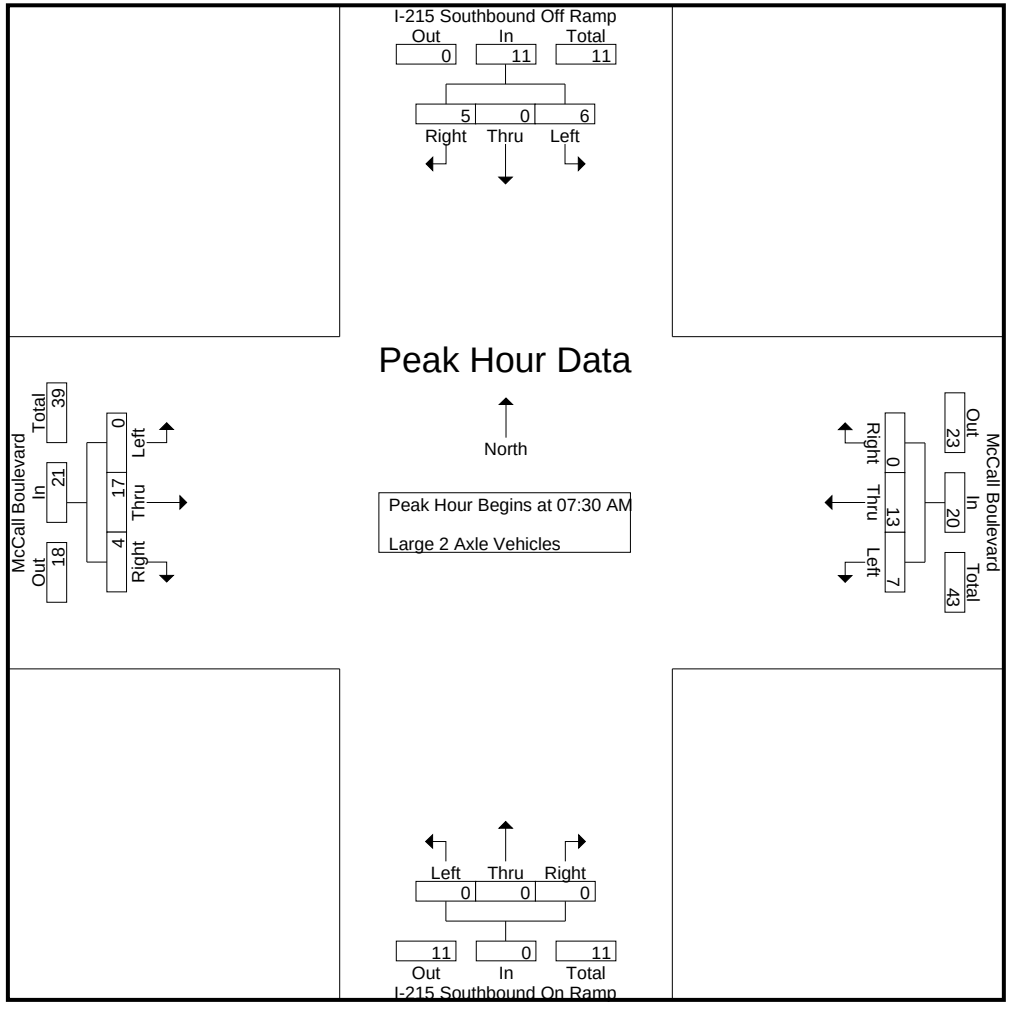
	I-215 Southbound Off Ramp Southbound					McCall Boulevard Westbound					I-215 Southbound On Ramp Northbound					McCall Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	4	2	4	2	3	0	0	5	0	0	0	0	0	0	10	2	0	12	2	21	23
07:15 AM	1	0	5	4	6	1	0	0	0	1	0	0	0	0	0	0	2	2	0	4	4	11	15
07:30 AM	1	0	2	1	3	1	3	0	0	4	0	0	0	0	0	0	0	1	0	1	1	8	9
07:45 AM	0	0	0	0	0	1	4	0	0	5	0	0	0	0	0	0	6	0	0	6	0	11	11
Total	2	0	11	7	13	5	10	0	0	15	0	0	0	0	0	0	18	5	0	23	7	51	58
08:00 AM	1	0	1	1	2	2	2	0	0	4	0	0	0	0	0	0	3	2	0	5	1	11	12
08:15 AM	4	0	2	1	6	3	4	0	0	7	0	0	0	0	0	0	8	1	0	9	1	22	23
08:30 AM	2	0	2	1	4	3	5	0	0	8	0	0	0	0	0	0	4	2	0	6	1	18	19
08:45 AM	1	0	4	2	5	1	4	0	0	5	0	0	0	0	0	0	0	0	0	0	2	10	12
Total	8	0	9	5	17	9	15	0	0	24	0	0	0	0	0	0	15	5	0	20	5	61	66
Grand Total	10	0	20	12	30	14	25	0	0	39	0	0	0	0	0	0	33	10	0	43	12	112	124
Apprch %	33.3	0	66.7			35.9	64.1	0			0	0	0			0	76.7	23.3					
Total %	8.9	0	17.9		26.8	12.5	22.3	0		34.8	0	0	0		0	0	29.5	8.9		38.4	9.7	90.3	

	I-215 Southbound Off Ramp Southbound				McCall Boulevard Westbound				I-215 Southbound On Ramp Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	1	0	**2**	3	1	3	0	4	0	0	0	0	0	0	1	1	8
07:45 AM	0	0	0	0	1	**4**	0	5	0	0	0	0	0	6	0	6	11
08:00 AM	1	0	1	2	2	2	0	4	0	0	0	0	0	3	**2**	5	11
08:15 AM	**4**	0	2	**6**	**3**	4	0	**7**	0	0	0	0	0	**8**	1	**9**	**22**
Total Volume	6	0	5	11	7	13	0	20	0	0	0	0	0	17	4	21	52
% App. Total	54.5	0	45.5		35	65	0		0	0	0		0	81	19		
PHF	.375	.000	.625	.458	.583	.813	.000	.714	.000	.000	.000	.000	.000	.531	.500	.583	.591

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951)268-6268

City of Menifee
N/S: I-215 Southbound Ramps
E/W: McCall Boulevard
Weather: Clear

File Name : 01_MEN_215S_McC AM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 2



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City of Menifee
N/S: I-215 Southbound Ramps
E/W: McCall Boulevard
Weather: Clear

File Name : 01_MEN_215S_McC AM
Site Code : 05122850
Start Date : 9/27/2022

	I-215 Southbound Off Ramp Southbound				McCall Boulevard Westbound				I-215 Southbound On Ramp Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:30 AM				07:30 AM				07:30 AM				07:30 AM				
+0 mins.	1	0	**2**	3	1	3	0	4	0	0	0	0	0	0	1	1	
+15 mins.	0	0	0	0	1	**4**	0	5	0	0	0	0	0	6	0	6	
+30 mins.	1	0	1	2	2	2	0	4	0	0	0	0	0	3	**2**	5	
+45 mins.	**4**	0	2	**6**	**3**	4	0	**7**	0	0	0	0	0	**8**	1	**9**	
Total Volume	6	0	5	11	7	13	0	20	0	0	0	0	0	17	4	21	
% App. Total	54.5	0	45.5		35	65	0		0	0	0		0	81	19		
PHF	.375	.000	.625	.458	.583	.813	.000	.714	.000	.000	.000	.000	.000	.531	.500	.583	

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City of Menifee
N/S: I-215 Southbound Ramps
E/W: McCall Boulevard
Weather: Clear

File Name : 01_MEN_215S_McC AM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 1

Groups Printed- 3 Axle Vehicles

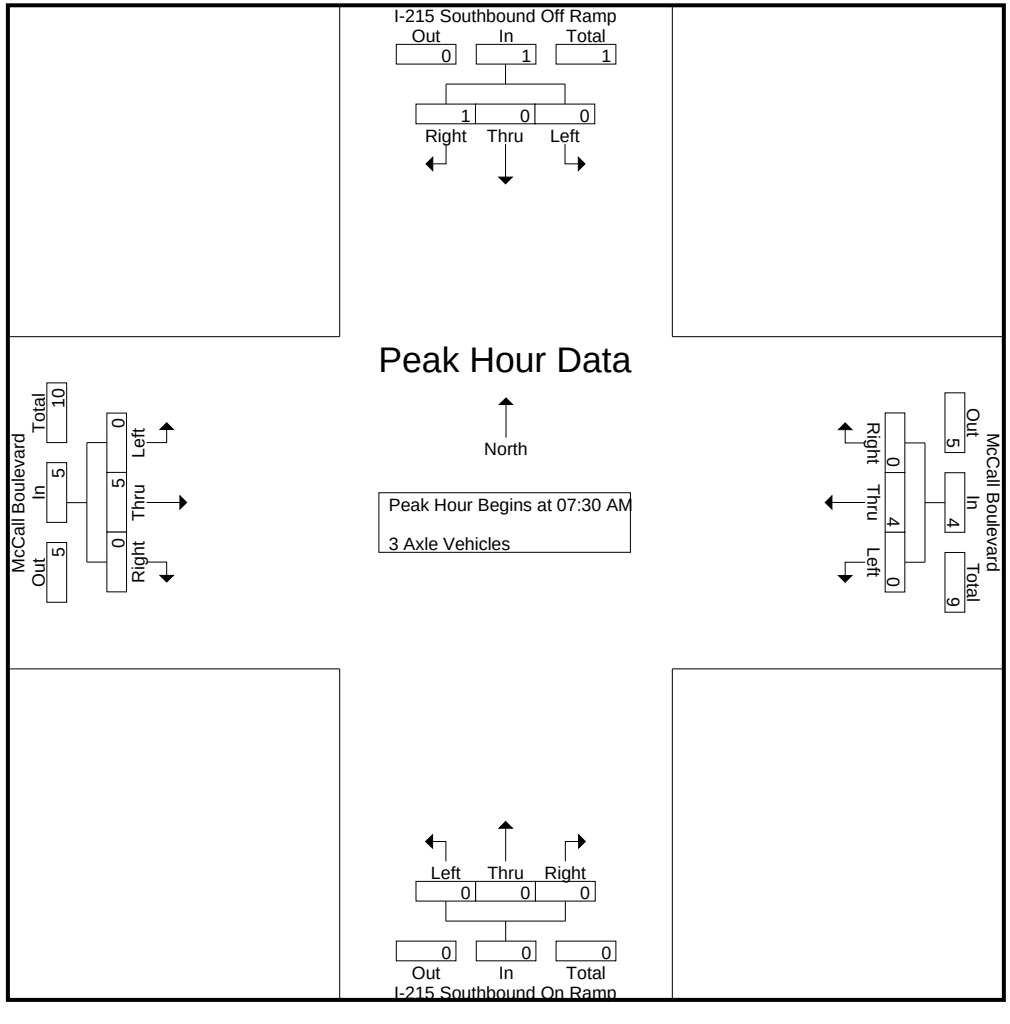
	I-215 Southbound Off Ramp Southbound					McCall Boulevard Westbound					I-215 Southbound On Ramp Northbound					McCall Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	2	0	0	2	0	3	3
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	0	4	4
Total	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	5	0	0	5	0	7	7
08:00 AM	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	3	3
08:15 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	3	3
08:30 AM	0	0	2	1	2	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	1	6	7
08:45 AM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	2
Total	0	1	3	1	4	0	4	0	0	4	0	0	0	0	0	0	6	0	0	6	1	14	15
Grand Total	0	1	3	1	4	1	5	0	0	6	0	0	0	0	0	0	11	0	0	11	1	21	22
Apprch %	0	25	75			16.7	83.3	0			0	0	0			0	100	0					
Total %	0	4.8	14.3		19	4.8	23.8	0		28.6	0	0	0		0	0	52.4	0		52.4	4.5	95.5	

	I-215 Southbound Off Ramp Southbound				McCall Boulevard Westbound				I-215 Southbound On Ramp Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	**3**	0	**3**	**4**
08:00 AM	0	0	**1**	**1**	0	1	0	1	0	0	0	0	0	1	0	1	3
08:15 AM	0	0	0	0	0	**2**	0	**2**	0	0	0	0	0	1	0	1	3
Total Volume	0	0	1	1	0	4	0	4	0	0	0	0	0	5	0	5	10
% App. Total	0	0	100		0	100	0		0	0	0		0	100	0		
PHF	.000	.000	.250	.250	.000	.500	.000	.500	.000	.000	.000	.000	.000	.417	.000	.417	.625

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951)268-6268

City of Menifee
N/S: I-215 Southbound Ramps
E/W: McCall Boulevard
Weather: Clear

File Name : 01_MEN_215S_McC AM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 2



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City of Menifee
N/S: I-215 Southbound Ramps
E/W: McCall Boulevard
Weather: Clear

File Name : 01_MEN_215S_McC AM
Site Code : 05122850
Start Date : 9/27/2022

	I-215 Southbound Off Ramp Southbound				McCall Boulevard Westbound				I-215 Southbound On Ramp Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:30 AM				07:30 AM				07:30 AM				07:30 AM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
+15 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	**3**	0	**3**	
+30 mins.	0	0	**1**	**1**	0	1	0	1	0	0	0	0	0	1	0	1	
+45 mins.	0	0	0	0	0	**2**	0	**2**	0	0	0	0	0	1	0	1	
Total Volume	0	0	1	1	0	4	0	4	0	0	0	0	0	5	0	5	
% App. Total	0	0	100		0	100	0		0	0	0		0	100	0		
PHF	.000	.000	.250	.250	.000	.500	.000	.500	.000	.000	.000	.000	.000	.417	.000	.417	

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City of Menifee
N/S: I-215 Southbound Ramps
E/W: McCall Boulevard
Weather: Clear

File Name : 01_MEN_215S_McC AM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 1

Groups Printed- 4+ Axle Trucks

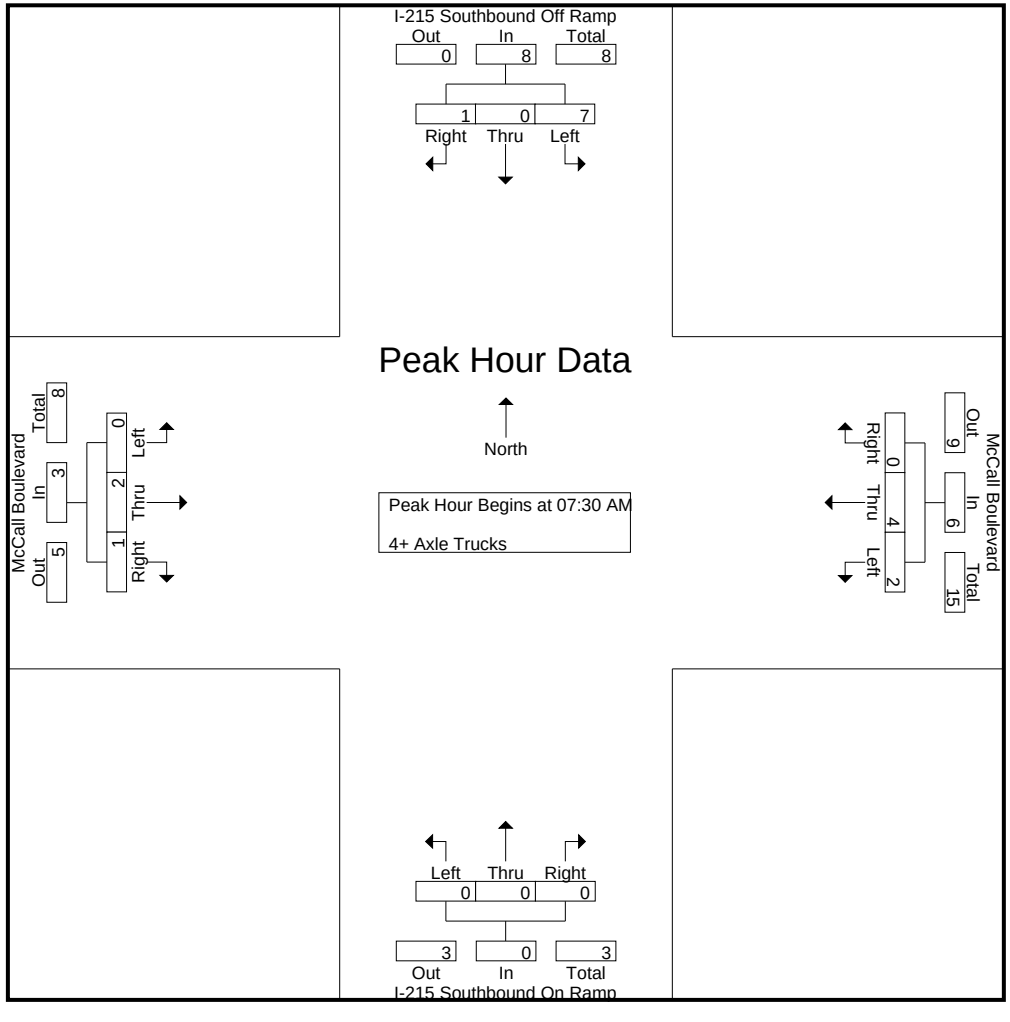
	I-215 Southbound Off Ramp Southbound					McCall Boulevard Westbound					I-215 Southbound On Ramp Northbound					McCall Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	3	0	3	0	6	2	0	0	0	2	0	0	0	0	0	0	1	0	0	1	0	9	9
07:15 AM	2	0	2	1	4	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	5	6
07:30 AM	2	0	1	0	3	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	5	5
07:45 AM	2	0	0	0	2	0	1	0	0	1	0	0	0	0	0	0	1	1	0	2	0	5	5
Total	9	0	6	1	15	2	3	0	0	5	0	0	0	0	0	0	2	2	0	4	1	24	25
08:00 AM	3	0	0	0	3	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	5	5
08:15 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0	2	2
08:30 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	2
08:45 AM	2	0	0	0	2	1	0	0	0	1	0	0	0	0	0	0	0	2	0	2	0	5	5
Total	5	0	0	0	5	3	3	0	0	6	0	0	0	0	0	0	1	2	0	3	0	14	14
Grand Total	14	0	6	1	20	5	6	0	0	11	0	0	0	0	0	0	3	4	0	7	1	38	39
Apprch %	70	0	30			45.5	54.5	0			0	0	0			0	42.9	57.1					
Total %	36.8	0	15.8		52.6	13.2	15.8	0		28.9	0	0	0		0	0	7.9	10.5		18.4	2.6	97.4	

	I-215 Southbound Off Ramp Southbound				McCall Boulevard Westbound				I-215 Southbound On Ramp Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	2	0	**1**	**3**	0	**2**	0	**2**	0	0	0	0	0	0	0	0	**5**
07:45 AM	2	0	0	2	0	1	0	1	0	0	0	0	0	**1**	**1**	**2**	5
08:00 AM	**3**	0	0	3	**1**	1	0	2	0	0	0	0	0	0	0	0	5
08:15 AM	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	1	2
Total Volume	7	0	1	8	2	4	0	6	0	0	0	0	0	2	1	3	17
% App. Total	87.5	0	12.5		33.3	66.7	0		0	0	0		0	66.7	33.3		
PHF	.583	.000	.250	.667	.500	.500	.000	.750	.000	.000	.000	.000	.000	.500	.250	.375	.850

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City of Menifee
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Weather: Clear

File Name : 01_MEN_215S_McC AM
Site Code : 05122850
Start Date : 9/27/2022
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City of Menifee
N/S: I-215 Southbound Ramps
E/W: McCall Boulevard
Weather: Clear

File Name : 01_MEN_215S_McC AM
Site Code : 05122850
Start Date : 9/27/2022

	I-215 Southbound Off Ramp Southbound				McCall Boulevard Westbound				I-215 Southbound On Ramp Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:30 AM				07:30 AM				07:30 AM				07:30 AM				
+0 mins.	2	0	**1**	**3**	0	**2**	0	**2**	0	0	0	0	0	0	0	0	
+15 mins.	2	0	0	2	0	1	0	1	0	0	0	0	0	**1**	**1**	**2**	
+30 mins.	**3**	0	0	3	**1**	1	0	2	0	0	0	0	0	0	0	0	
+45 mins.	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	1	
Total Volume	7	0	1	8	2	4	0	6	0	0	0	0	0	2	1	3	
% App. Total	87.5	0	12.5		33.3	66.7	0		0	0	0		0	66.7	33.3		
PHF	.583	.000	.250	.667	.500	.500	.000	.750	.000	.000	.000	.000	.000	.500	.250	.375	

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File Name : 01_MEN_215S_McC PM
Site Code : 05122850
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Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

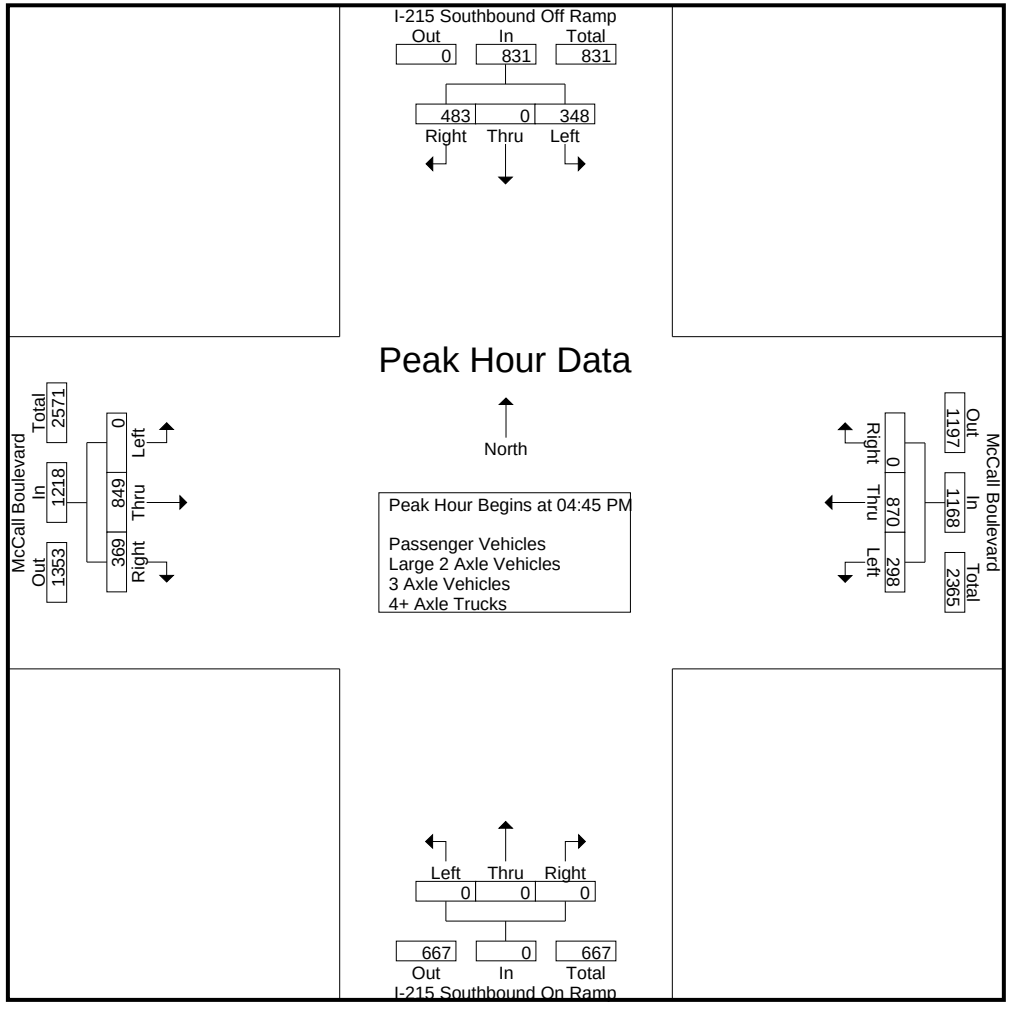
	I-215 Southbound Off Ramp Southbound					McCall Boulevard Westbound					I-215 Southbound On Ramp Northbound					McCall Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	84	0	112	43	196	80	211	0	0	291	0	0	0	0	0	0	197	73	0	270	43	757	800
04:15 PM	78	0	120	50	198	65	205	0	0	270	0	0	0	0	0	0	171	75	0	246	50	714	764
04:30 PM	80	2	118	46	200	85	221	0	0	306	0	0	0	0	0	0	216	72	0	288	46	794	840
04:45 PM	68	0	119	41	187	71	239	0	0	310	0	0	0	0	0	0	230	92	0	322	41	819	860
Total	310	2	469	180	781	301	876	0	0	1177	0	0	0	0	0	0	814	312	0	1126	180	3084	3264
05:00 PM	86	0	133	47	219	77	200	0	0	277	0	0	0	0	0	0	229	84	0	313	47	809	856
05:15 PM	92	0	108	40	200	73	197	0	0	270	0	0	0	0	0	0	210	103	0	313	40	783	823
05:30 PM	102	0	123	37	225	77	234	0	0	311	0	0	0	0	0	0	180	90	0	270	37	806	843
05:45 PM	81	0	111	40	192	63	187	0	0	250	0	0	0	0	0	0	193	78	0	271	40	713	753
Total	361	0	475	164	836	290	818	0	0	1108	0	0	0	0	0	0	812	355	0	1167	164	3111	3275
Grand Total	671	2	944	344	1617	591	1694	0	0	2285	0	0	0	0	0	0	1626	667	0	2293	344	6195	6539
Apprch %	41.5	0.1	58.4			25.9	74.1	0			0	0	0			0	70.9	29.1					
Total %	10.8	0	15.2		26.1	9.5	27.3	0		36.9	0	0	0		0	0	26.2	10.8		37	5.3	94.7	
Passenger Vehicles	659	2	931		1933	584	1679	0		2263	0	0	0		0	0	1595	656		2251	0	0	6447
% Passenger Vehicles	98.2	100	98.6	99.1	98.6	98.8	99.1	0	0	99	0	0	0	0	0	0	98.1	98.4	0	98.2	0	0	98.6
Large 2 Axle Vehicles	9	0	12		24	7	14	0		21	0	0	0		0	0	26	8		34	0	0	79
% Large 2 Axle Vehicles	1.3	0	1.3	0.9	1.2	1.2	0.8	0	0	0.9	0	0	0	0	0	0	1.6	1.2	0	1.5	0	0	1.2
3 Axle Vehicles	0	0	0		0	0	1	0		1	0	0	0		0	0	3	1		4	0	0	5
% 3 Axle Vehicles	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0.2	0.1	0	0.2	0	0	0.1
4+ Axle Trucks	3	0	1		4	0	0	0		0	0	0	0		0	0	2	2		4	0	0	8
% 4+ Axle Trucks	0.4	0	0.1	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0.1	0.3	0	0.2	0	0	0.1

	I-215 Southbound Off Ramp Southbound				McCall Boulevard Westbound				I-215 Southbound On Ramp Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	68	0	119	187	71	**239**	0	310	0	0	0	0	0	**230**	92	**322**	**819**
05:00 PM	86	0	**133**	219	**77**	200	0	277	0	0	0	0	0	229	84	313	809
05:15 PM	92	0	108	200	73	197	0	270	0	0	0	0	0	210	**103**	313	783
05:30 PM	**102**	0	123	**225**	77	234	0	**311**	0	0	0	0	0	180	90	270	806
Total Volume	348	0	483	831	298	870	0	1168	0	0	0	0	0	849	369	1218	3217
% App. Total	41.9	0	58.1		25.5	74.5	0		0	0	0		0	69.7	30.3		
PHF	.853	.000	.908	.923	.968	.910	.000	.939	.000	.000	.000	.000	.000	.923	.896	.946	.982

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City of Menifee
N/S: I-215 Southbound Ramps
E/W: McCall Boulevard
Weather: Clear

File Name : 01_MEN_215S_McC PM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 2



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City of Menifee
N/S: I-215 Southbound Ramps
E/W: McCall Boulevard
Weather: Clear

File Name : 01_MEN_215S_McC PM
Site Code : 05122850
Start Date : 9/27/2022

	I-215 Southbound Off Ramp Southbound				McCall Boulevard Westbound				I-215 Southbound On Ramp Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	05:00 PM				04:00 PM				04:00 PM				04:30 PM				
+0 mins.	86	0	**133**	219	80	211	0	291	0	0	0	0	0	216	72	288	
+15 mins.	92	0	108	200	65	205	0	270	0	0	0	0	0	**230**	92	**322**	
+30 mins.	**102**	0	123	**225**	**85**	221	0	306	0	0	0	0	0	229	84	313	
+45 mins.	81	0	111	192	71	**239**	0	**310**	0	0	0	0	0	210	**103**	313	
Total Volume	361	0	475	836	301	876	0	1177	0	0	0	0	0	885	351	1236	
% App. Total	43.2	0	56.8		25.6	74.4	0		0	0	0		0	71.6	28.4		
PHF	.885	.000	.893	.929	.885	.916	.000	.949	.000	.000	.000	.000	.000	.962	.852	.960	

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File Name : 01_MEN_215S_McC PM
Site Code : 05122850
Start Date : 9/27/2022
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Groups Printed- Passenger Vehicles

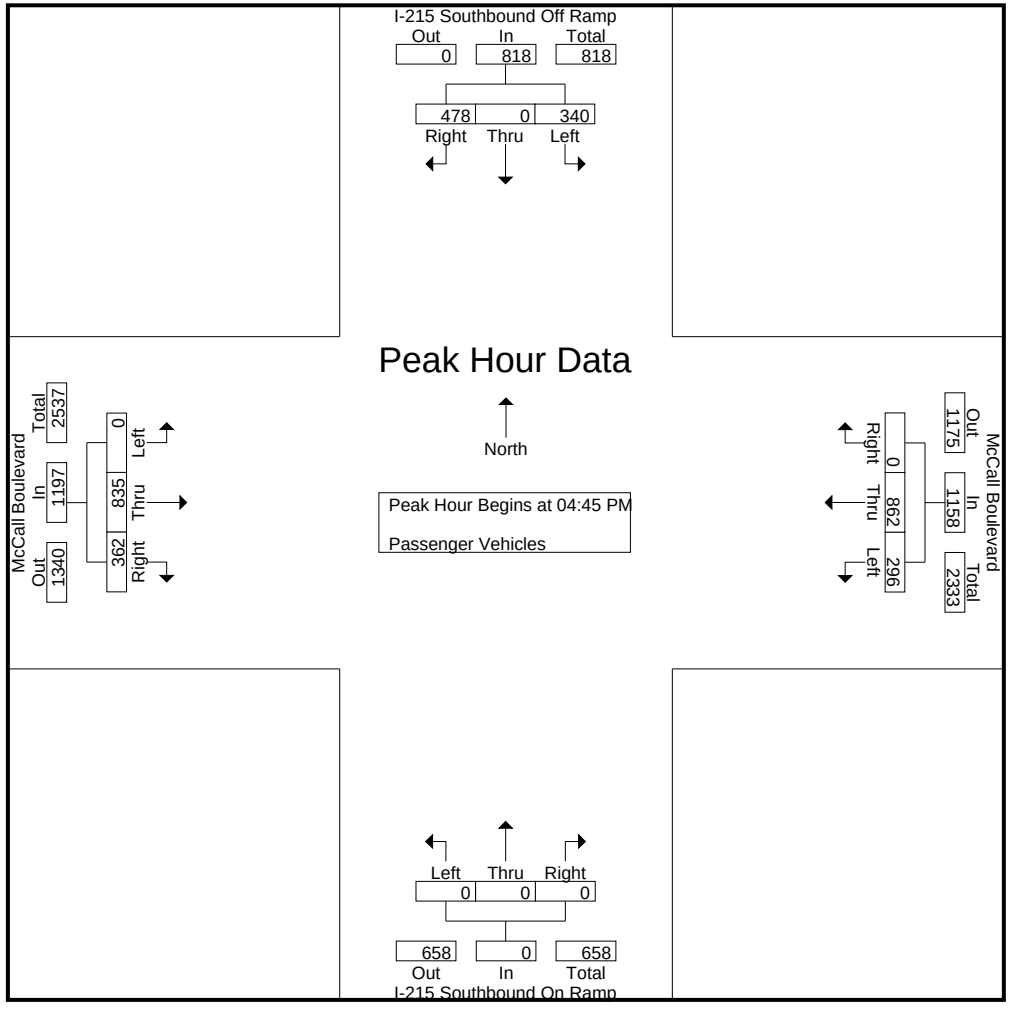
	I-215 Southbound Off Ramp Southbound					McCall Boulevard Westbound					I-215 Southbound On Ramp Northbound					McCall Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	84	0	110	43	194	79	209	0	0	288	0	0	0	0	0	0	191	73	0	264	43	746	789
04:15 PM	77	0	116	50	193	64	203	0	0	267	0	0	0	0	0	0	166	74	0	240	50	700	750
04:30 PM	77	2	117	46	196	82	219	0	0	301	0	0	0	0	0	0	213	72	0	285	46	782	828
04:45 PM	67	0	119	41	186	71	237	0	0	308	0	0	0	0	0	0	223	92	0	315	41	809	850
Total	305	2	462	180	769	296	868	0	0	1164	0	0	0	0	0	0	793	311	0	1104	180	3037	3217
05:00 PM	84	0	130	45	214	76	196	0	0	272	0	0	0	0	0	0	227	82	0	309	45	795	840
05:15 PM	90	0	107	39	197	73	195	0	0	268	0	0	0	0	0	0	207	102	0	309	39	774	813
05:30 PM	99	0	122	37	221	76	234	0	0	310	0	0	0	0	0	0	178	86	0	264	37	795	832
05:45 PM	81	0	110	40	191	63	186	0	0	249	0	0	0	0	0	0	190	75	0	265	40	705	745
Total	354	0	469	161	823	288	811	0	0	1099	0	0	0	0	0	0	802	345	0	1147	161	3069	3230
Grand Total	659	2	931	341	1592	584	1679	0	0	2263	0	0	0	0	0	0	1595	656	0	2251	341	6106	6447
Apprch %	41.4	0.1	58.5			25.8	74.2	0			0	0	0			0	70.9	29.1					
Total %	10.8	0	15.2		26.1	9.6	27.5	0		37.1	0	0	0		0	0	26.1	10.7		36.9	5.3	94.7	

	I-215 Southbound Off Ramp Southbound				McCall Boulevard Westbound				I-215 Southbound On Ramp Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	67	0	119	186	71	**237**	0	308	0	0	0	0	0	223	92	**315**	**809**
05:00 PM	84	0	**130**	214	**76**	196	0	272	0	0	0	0	0	**227**	82	309	795
05:15 PM	90	0	107	197	73	195	0	268	0	0	0	0	0	207	**102**	309	774
05:30 PM	**99**	0	122	**221**	76	234	0	**310**	0	0	0	0	0	178	86	264	795
Total Volume	340	0	478	818	296	862	0	1158	0	0	0	0	0	835	362	1197	3173
% App. Total	41.6	0	58.4		25.6	74.4	0		0	0	0		0	69.8	30.2		
PHF	.859	.000	.919	.925	.974	.909	.000	.934	.000	.000	.000	.000	.000	.920	.887	.950	.981

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City of Menifee
N/S: I-215 Southbound Ramps
E/W: McCall Boulevard
Weather: Clear

File Name : 01_MEN_215S_McC PM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 2



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City of Menifee
N/S: I-215 Southbound Ramps
E/W: McCall Boulevard
Weather: Clear

File Name : 01_MEN_215S_McC PM
Site Code : 05122850
Start Date : 9/27/2022

	I-215 Southbound Off Ramp Southbound				McCall Boulevard Westbound				I-215 Southbound On Ramp Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:45 PM				04:45 PM				04:45 PM				04:45 PM				
+0 mins.	67	0	119	186	71	**237**	0	308	0	0	0	0	0	223	92	**315**	
+15 mins.	84	0	**130**	214	**76**	196	0	272	0	0	0	0	0	**227**	82	309	
+30 mins.	90	0	107	197	73	195	0	268	0	0	0	0	0	207	**102**	309	
+45 mins.	**99**	0	122	**221**	76	234	0	**310**	0	0	0	0	0	178	86	264	
Total Volume	340	0	478	818	296	862	0	1158	0	0	0	0	0	835	362	1197	
% App. Total	41.6	0	58.4		25.6	74.4	0		0	0	0		0	69.8	30.2		
PHF	.859	.000	.919	.925	.974	.909	.000	.934	.000	.000	.000	.000	.000	.920	.887	.950	

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City of Menifee
N/S: I-215 Southbound Ramps
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Weather: Clear

File Name : 01_MEN_215S_McC PM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 1

Groups Printed- Large 2 Axle Vehicles

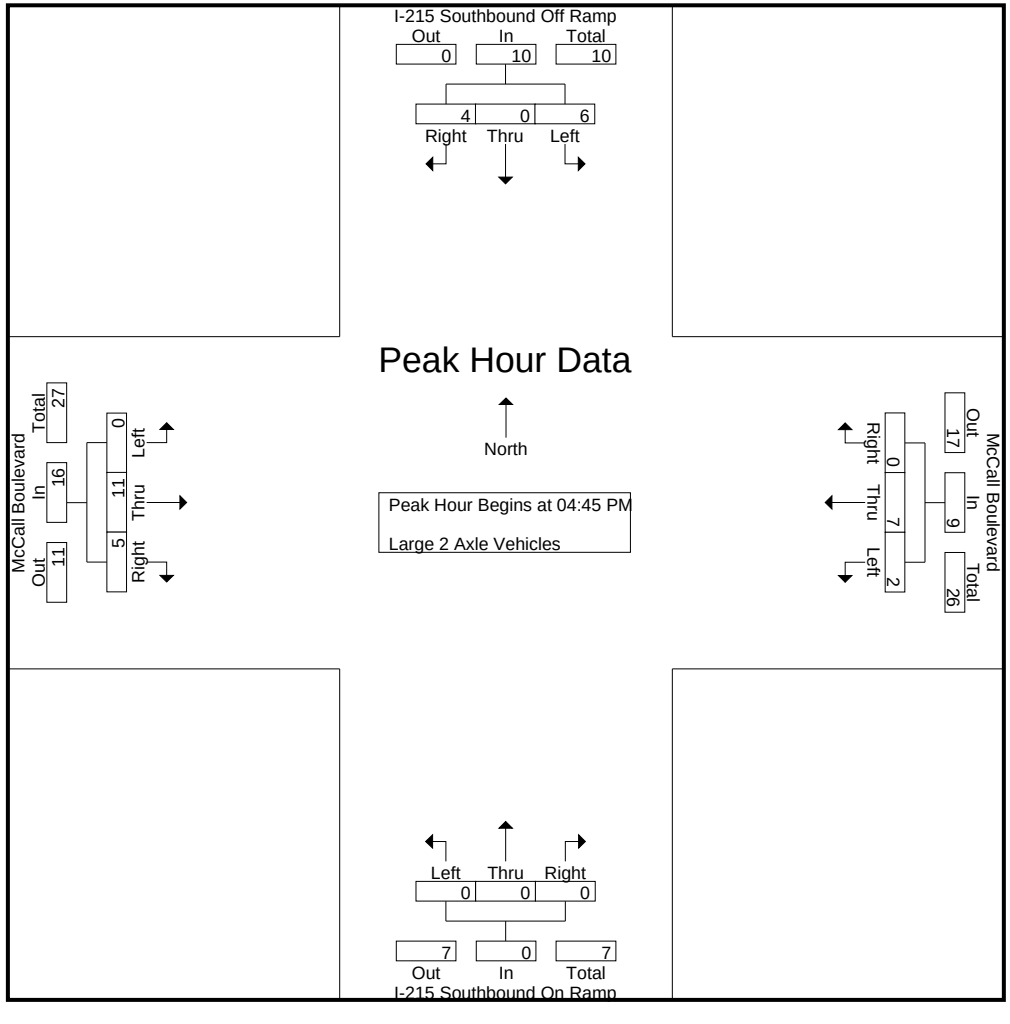
	I-215 Southbound Off Ramp Southbound					McCall Boulevard Westbound					I-215 Southbound On Ramp Northbound					McCall Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	2	0	2	1	2	0	0	3	0	0	0	0	0	0	5	0	0	5	0	10	10
04:15 PM	0	0	4	0	4	1	2	0	0	3	0	0	0	0	0	0	4	1	0	5	0	12	12
04:30 PM	3	0	1	0	4	3	2	0	0	5	0	0	0	0	0	0	3	0	0	3	0	12	12
04:45 PM	1	0	0	0	1	0	2	0	0	2	0	0	0	0	0	0	4	0	0	4	0	7	7
Total	4	0	7	0	11	5	8	0	0	13	0	0	0	0	0	0	16	1	0	17	0	41	41
05:00 PM	1	0	2	2	3	1	4	0	0	5	0	0	0	0	0	0	2	1	0	3	2	11	13
05:15 PM	1	0	1	1	2	0	1	0	0	1	0	0	0	0	0	0	3	1	0	4	1	7	8
05:30 PM	3	0	1	0	4	1	0	0	0	1	0	0	0	0	0	0	2	3	0	5	0	10	10
05:45 PM	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	0	3	2	0	5	0	7	7
Total	5	0	5	3	10	2	6	0	0	8	0	0	0	0	0	0	10	7	0	17	3	35	38
Grand Total	9	0	12	3	21	7	14	0	0	21	0	0	0	0	0	0	26	8	0	34	3	76	79
Apprch %	42.9	0	57.1			33.3	66.7	0			0	0	0			0	76.5	23.5					
Total %	11.8	0	15.8		27.6	9.2	18.4	0		27.6	0	0	0		0	0	34.2	10.5		44.7	3.8	96.2	

	I-215 Southbound Off Ramp Southbound				McCall Boulevard Westbound				I-215 Southbound On Ramp Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	1	0	0	1	0	2	0	2	0	0	0	0	0	**4**	0	4	7
05:00 PM	1	0	**2**	3	**1**	**4**	0	**5**	0	0	0	0	0	2	1	3	**11**
05:15 PM	1	0	1	2	0	1	0	1	0	0	0	0	0	3	1	4	7
05:30 PM	**3**	0	1	**4**	1	0	0	1	0	0	0	0	0	2	**3**	**5**	10
Total Volume	6	0	4	10	2	7	0	9	0	0	0	0	0	11	5	16	35
% App. Total	60	0	40		22.2	77.8	0		0	0	0		0	68.8	31.2		
PHF	.500	.000	.500	.625	.500	.438	.000	.450	.000	.000	.000	.000	.000	.688	.417	.800	.795

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City of Menifee
N/S: I-215 Southbound Ramps
E/W: McCall Boulevard
Weather: Clear

File Name : 01_MEN_215S_McC PM
Site Code : 05122850
Start Date : 9/27/2022
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City of Menifee
N/S: I-215 Southbound Ramps
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File Name : 01_MEN_215S_McC PM
Site Code : 05122850
Start Date : 9/27/2022

	I-215 Southbound Off Ramp Southbound				McCall Boulevard Westbound				I-215 Southbound On Ramp Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:45 PM				04:45 PM				04:45 PM				04:45 PM				
+0 mins.	1	0	0	1	0	2	0	2	0	0	0	0	0	**4**	0	4	
+15 mins.	1	0	**2**	3	**1**	**4**	0	**5**	0	0	0	0	0	2	1	3	
+30 mins.	1	0	1	2	0	1	0	1	0	0	0	0	0	3	1	4	
+45 mins.	**3**	0	1	**4**	1	0	0	1	0	0	0	0	0	2	**3**	**5**	
Total Volume	6	0	4	10	2	7	0	9	0	0	0	0	0	11	5	16	
% App. Total	60	0	40		22.2	77.8	0		0	0	0		0	68.8	31.2		
PHF	.500	.000	.500	.625	.500	.438	.000	.450	.000	.000	.000	.000	.000	.688	.417	.800	

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File Name : 01_MEN_215S_McC PM
Site Code : 05122850
Start Date : 9/27/2022
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Groups Printed- 3 Axle Vehicles

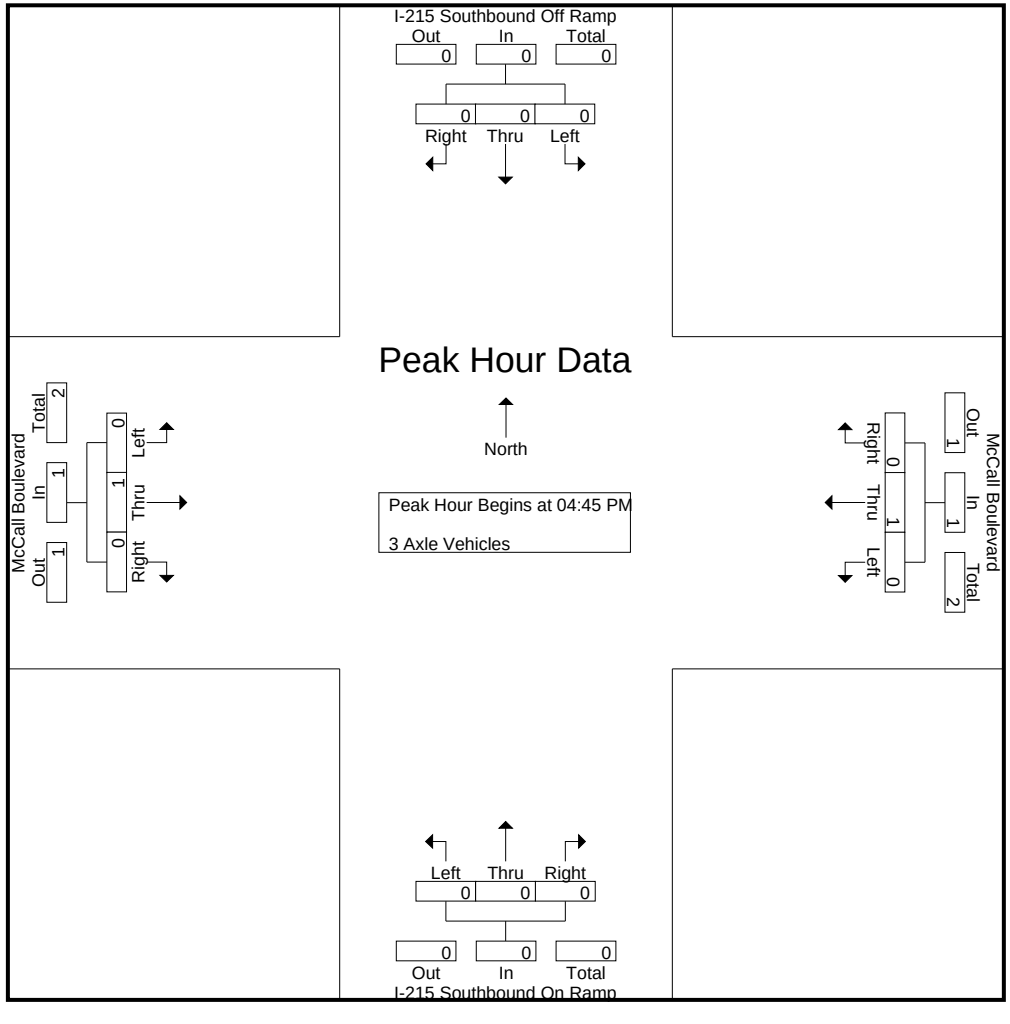
	I-215 Southbound Off Ramp Southbound					McCall Boulevard Westbound					I-215 Southbound On Ramp Northbound					McCall Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	3	3
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	1
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	0	2	2
Grand Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	1	0	4	0	5	5
Apprch %	0	0	0			0	100	0			0	0	0			0	75	25					
Total %	0	0	0		0	0	20	0		20	0	0	0		0	0	60	20		80	0	100	

	I-215 Southbound Off Ramp Southbound				McCall Boulevard Westbound				I-215 Southbound On Ramp Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	**1**	**1**
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.250	.000	.250	.500

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City of Menifee
N/S: I-215 Southbound Ramps
E/W: McCall Boulevard
Weather: Clear

File Name : 01_MEN_215S_McC PM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 2



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City of Menifee
N/S: I-215 Southbound Ramps
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File Name : 01_MEN_215S_McC PM
Site Code : 05122850
Start Date : 9/27/2022

	I-215 Southbound Off Ramp Southbound				McCall Boulevard Westbound				I-215 Southbound On Ramp Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:45 PM				04:45 PM				04:45 PM				04:45 PM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	**1**	
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
+30 mins.	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	0	0	0	
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Volume	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.250	.000	.250	

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City of Menifee
N/S: I-215 Southbound Ramps
E/W: McCall Boulevard
Weather: Clear

File Name : 01_MEN_215S_McC PM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 1

Groups Printed- 4+ Axle Trucks

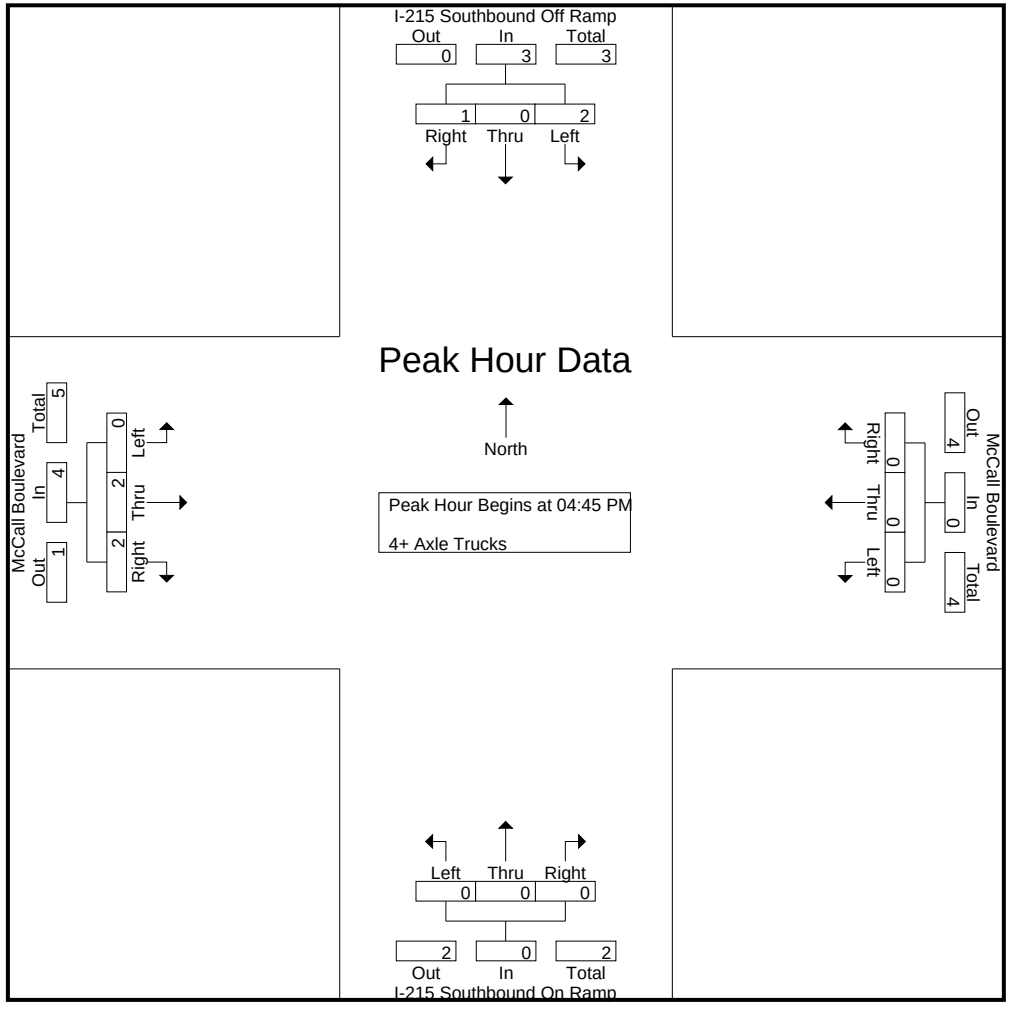
	I-215 Southbound Off Ramp Southbound					McCall Boulevard Westbound					I-215 Southbound On Ramp Northbound					McCall Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	2	2
Total	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	3	3
05:00 PM	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	3	3
05:15 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	1
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	2	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	5	5
Grand Total	3	0	1	0	4	0	0	0	0	0	0	0	0	0	0	0	2	2	0	4	0	8	8
Apprch %	75	0	25			0	0	0			0	0	0			0	50	50					
Total %	37.5	0	12.5		50	0	0	0		0	0	0	0		0	0	25	25		50	0	100	

	I-215 Southbound Off Ramp Southbound				McCall Boulevard Westbound				I-215 Southbound On Ramp Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**2**	0	**2**	2
05:00 PM	**1**	0	**1**	**2**	0	0	0	0	0	0	0	0	0	0	**1**	1	**3**
05:15 PM	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Total Volume	2	0	1	3	0	0	0	0	0	0	0	0	0	2	2	4	7
% App. Total	66.7	0	33.3		0	0	0		0	0	0		0	50	50		
PHF	.500	.000	.250	.375	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.500	.500	.583

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City of Menifee
N/S: I-215 Southbound Ramps
E/W: McCall Boulevard
Weather: Clear

File Name : 01_MEN_215S_McC PM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 2



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City of Menifee
N/S: I-215 Southbound Ramps
E/W: McCall Boulevard
Weather: Clear

File Name : 01_MEN_215S_McC PM
Site Code : 05122850
Start Date : 9/27/2022

	I-215 Southbound Off Ramp Southbound				McCall Boulevard Westbound				I-215 Southbound On Ramp Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:45 PM				04:45 PM				04:45 PM				04:45 PM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	**2**	0	**2**	
+15 mins.	**1**	0	**1**	**2**	0	0	0	0	0	0	0	0	0	0	**1**	1	
+30 mins.	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	
Total Volume	2	0	1	3	0	0	0	0	0	0	0	0	0	2	2	4	
% App. Total	66.7	0	33.3		0	0	0		0	0	0		0	50	50		
PHF	.500	.000	.250	.375	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.500	.500	

Location: Menifee
N/S: I-215 SB Ramps
E/W: McCall Boulevard

Date: 9/27/2022
Day: Tuesday

PEDESTRIANS

	North Leg I-215 SB Ramps	East Leg McCall Boulevard	South Leg I-215 SB Ramps	West Leg McCall Boulevard	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	1	0	1
8:30 AM	0	0	0	0	0
8:45 AM	0	0	1	0	1
TOTAL VOLUMES:	0	0	2	0	2

	North Leg I-215 SB Ramps	East Leg McCall Boulevard	South Leg I-215 SB Ramps	West Leg McCall Boulevard	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	1	0	1
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	1	0	1
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	2	0	2

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Location: Menifee
N/S: I-215 SB Ramps
E/W: McCall Boulevard

Date: 9/27/2022
Day: Tuesday

BICYCLES

	Southbound I-215 SB Ramps			Westbound McCall Boulevard			Northbound I-215 SB Ramps			Eastbound McCall Boulevard			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	2	0	0	0	0	0	0	0	2
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	3	0	0	0	0	0	1	0	4

	Southbound I-215 SB Ramps			Westbound McCall Boulevard			Northbound I-215 SB Ramps			Eastbound McCall Boulevard			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

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City of Menifee
N/S: I-215 Northbound Ramps
E/W: McCall Boulevard
Weather: Clear

File Name : 02_MEN_215N_McC AM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

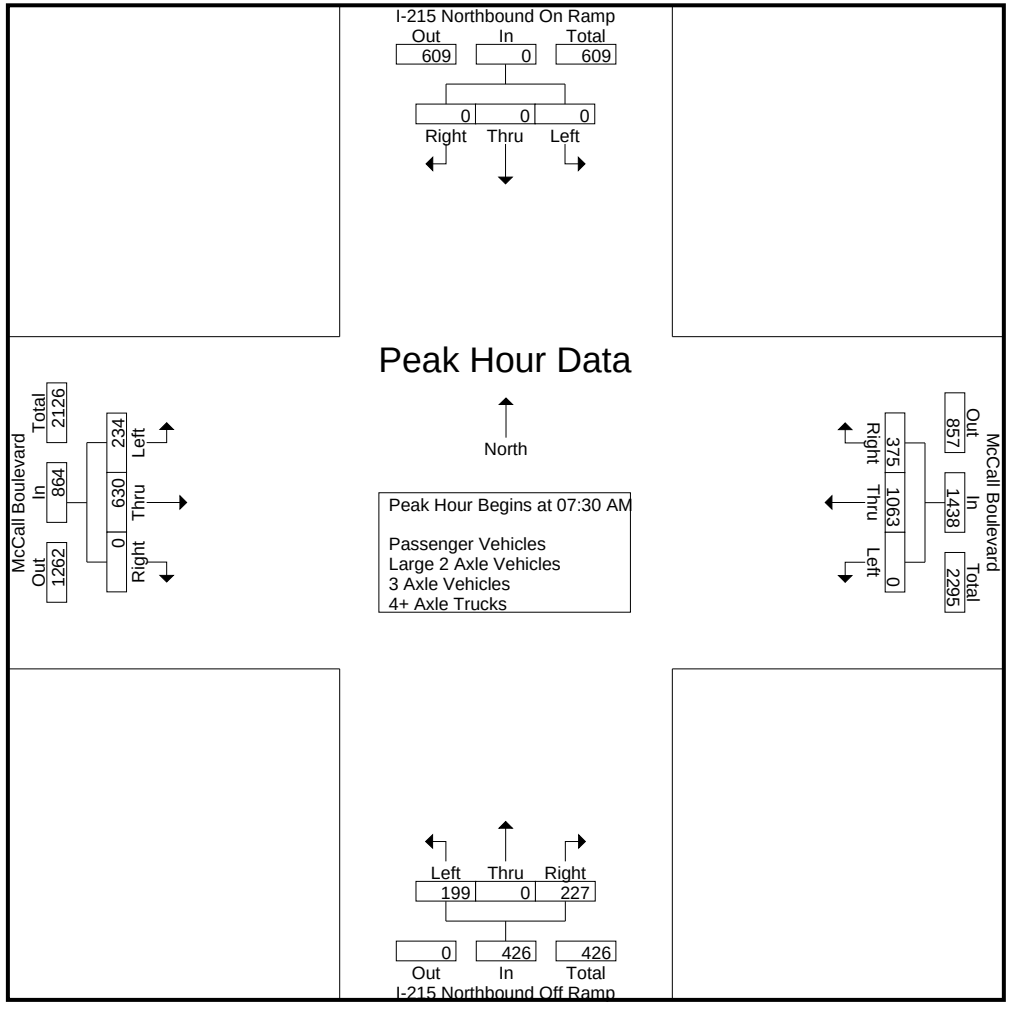
	I-215 Northbound On Ramp Southbound					McCall Boulevard Westbound					I-215 Northbound Off Ramp Northbound					McCall Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	175	79	2	254	29	0	53	38	82	65	110	0	0	175	40	511	551
07:15 AM	0	0	0	0	0	0	214	72	1	286	24	0	53	34	77	56	139	0	0	195	35	558	593
07:30 AM	0	0	0	0	0	0	241	103	1	344	46	0	39	23	85	56	158	0	0	214	24	643	667
07:45 AM	0	0	0	0	0	0	285	99	0	384	43	0	49	33	92	52	164	0	0	216	33	692	725
Total	0	0	0	0	0	0	915	353	4	1268	142	0	194	128	336	229	571	0	0	800	132	2404	2536
08:00 AM	0	0	0	0	0	0	258	98	0	356	54	0	79	36	133	65	169	0	0	234	36	723	759
08:15 AM	0	0	0	0	0	0	279	75	1	354	56	0	60	39	116	61	139	0	0	200	40	670	710
08:30 AM	0	0	0	0	0	0	218	63	0	281	55	0	69	31	124	50	125	0	0	175	31	580	611
08:45 AM	0	0	0	0	0	0	184	38	0	222	66	0	49	22	115	62	103	0	0	165	22	502	524
Total	0	0	0	0	0	0	939	274	1	1213	231	0	257	128	488	238	536	0	0	774	129	2475	2604
Grand Total	0	0	0	0	0	0	1854	627	5	2481	373	0	451	256	824	467	1107	0	0	1574	261	4879	5140
Apprch %	0	0	0			0	74.7	25.3			45.3	0	54.7			29.7	70.3	0					
Total %	0	0	0		0	0	38	12.9		50.9	7.6	0	9.2		16.9	9.6	22.7	0		32.3	5.1	94.9	
Passenger Vehicles	0	0	0		0	0	1802	612		2419	366	0	432		1044	448	1058	0		1506	0	0	4969
% Passenger Vehicles	0	0	0	0	0	0	97.2	97.6	100	97.3	98.1	0	95.8	96.1	96.7	95.9	95.6	0	0	95.7	0	0	96.7
Large 2 Axle Vehicles	0	0	0		0	0	38	6		44	3	0	17		29	17	26	0		43	0	0	116
% Large 2 Axle Vehicles	0	0	0	0	0	0	2	1	0	1.8	0.8	0	3.8	3.5	2.7	3.6	2.3	0	0	2.7	0	0	2.3
3 Axle Vehicles	0	0	0		0	0	6	2		8	0	0	2		3	1	10	0		11	0	0	22
% 3 Axle Vehicles	0	0	0	0	0	0	0.3	0.3	0	0.3	0	0	0.4	0.4	0.3	0.2	0.9	0	0	0.7	0	0	0.4
4+ Axle Trucks	0	0	0		0	0	8	7		15	4	0	0		4	1	13	0		14	0	0	33
% 4+ Axle Trucks	0	0	0	0	0	0	0.4	1.1	0	0.6	1.1	0	0	0	0.4	0.2	1.2	0	0	0.9	0	0	0.6

	I-215 Northbound On Ramp Southbound				McCall Boulevard Westbound				I-215 Northbound Off Ramp Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	0	241	**103**	344	46	0	39	85	56	158	0	214	643
07:45 AM	0	0	0	0	0	**285**	99	**384**	43	0	49	92	52	164	0	216	692
08:00 AM	0	0	0	0	0	258	98	356	54	0	**79**	**133**	**65**	**169**	0	**234**	**723**
08:15 AM	0	0	0	0	0	279	75	354	**56**	0	60	116	61	139	0	200	670
Total Volume	0	0	0	0	0	1063	375	1438	199	0	227	426	234	630	0	864	2728
% App. Total	0	0	0		0	73.9	26.1		46.7	0	53.3		27.1	72.9	0		
PHF	.000	.000	.000	.000	.000	.932	.910	.936	.888	.000	.718	.801	.900	.932	.000	.923	.943

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City of Menifee
N/S: I-215 Northbound Ramps
E/W: McCall Boulevard
Weather: Clear

File Name : 02_MEN_215N_McC AM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 2



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City of Menifee
N/S: I-215 Northbound Ramps
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File Name : 02_MEN_215N_McC AM
Site Code : 05122850
Start Date : 9/27/2022

	I-215 Northbound On Ramp Southbound				McCall Boulevard Westbound				I-215 Northbound Off Ramp Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:30 AM				08:00 AM				07:30 AM				
+0 mins.	0	0	0	0	0	241	**103**	344	54	0	**79**	**133**	56	158	0	214	
+15 mins.	0	0	0	0	0	**285**	99	**384**	56	0	60	116	52	164	0	216	
+30 mins.	0	0	0	0	0	258	98	356	55	0	69	124	**65**	**169**	0	**234**	
+45 mins.	0	0	0	0	0	279	75	354	**66**	0	49	115	61	139	0	200	
Total Volume	0	0	0	0	0	1063	375	1438	231	0	257	488	234	630	0	864	
% App. Total	0	0	0		0	73.9	26.1		47.3	0	52.7		27.1	72.9	0		
PHF	.000	.000	.000	.000	.000	.932	.910	.936	.875	.000	.813	.917	.900	.932	.000	.923	

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City of Menifee
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File Name : 02_MEN_215N_McC AM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 1

Groups Printed- Passenger Vehicles

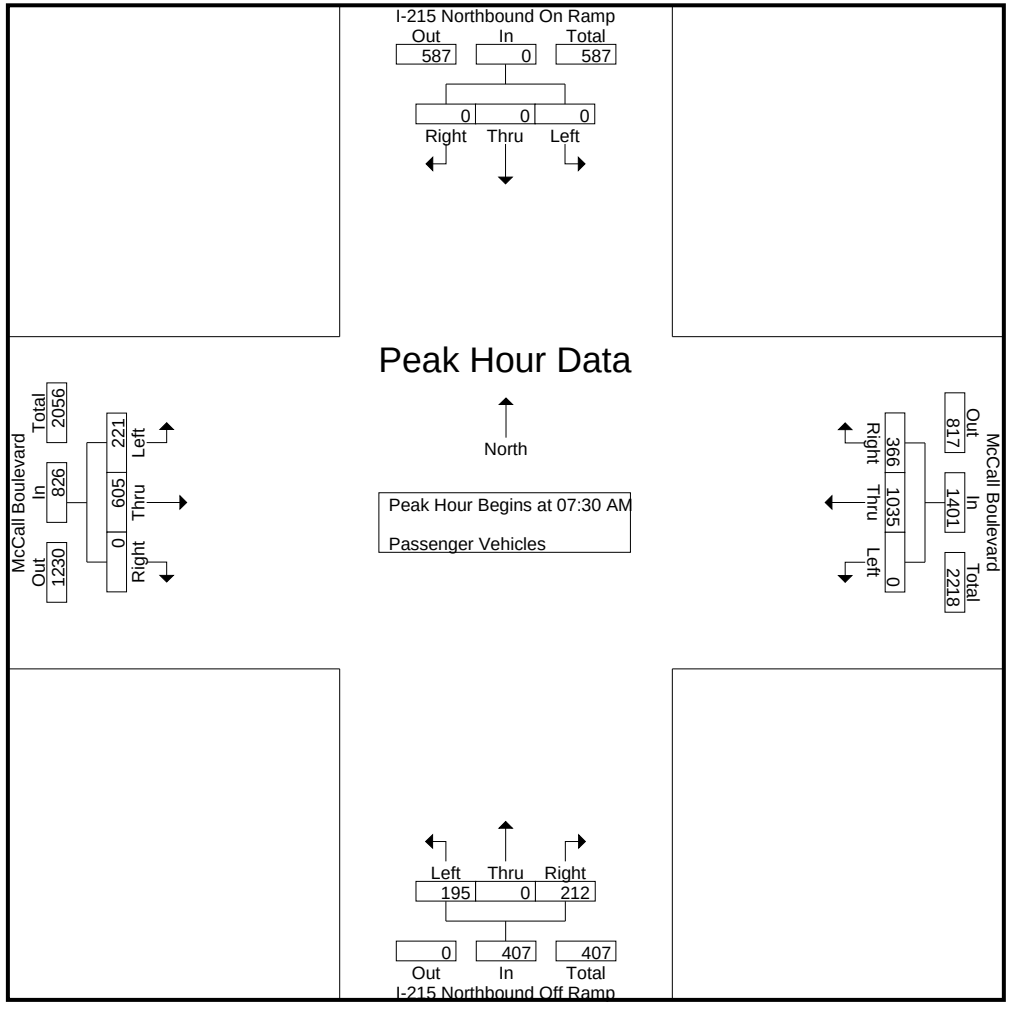
	I-215 Northbound On Ramp Southbound					McCall Boulevard Westbound					I-215 Northbound Off Ramp Northbound					McCall Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	167	79	2	246	29	0	53	38	82	62	101	0	0	163	40	491	531
07:15 AM	0	0	0	0	0	0	211	71	1	282	24	0	52	34	76	54	134	0	0	188	35	546	581
07:30 AM	0	0	0	0	0	0	237	103	1	340	45	0	37	21	82	56	154	0	0	210	22	632	654
07:45 AM	0	0	0	0	0	0	277	97	0	374	42	0	47	33	89	49	156	0	0	205	33	668	701
Total	0	0	0	0	0	0	892	350	4	1242	140	0	189	126	329	221	545	0	0	766	130	2337	2467
08:00 AM	0	0	0	0	0	0	252	95	0	347	53	0	75	33	128	64	162	0	0	226	33	701	734
08:15 AM	0	0	0	0	0	0	269	71	1	340	55	0	53	34	108	52	133	0	0	185	35	633	668
08:30 AM	0	0	0	0	0	0	211	59	0	270	54	0	67	31	121	49	118	0	0	167	31	558	589
08:45 AM	0	0	0	0	0	0	178	37	0	215	64	0	48	22	112	62	100	0	0	162	22	489	511
Total	0	0	0	0	0	0	910	262	1	1172	226	0	243	120	469	227	513	0	0	740	121	2381	2502
Grand Total	0	0	0	0	0	0	1802	612	5	2414	366	0	432	246	798	448	1058	0	0	1506	251	4718	4969
Apprch %	0	0	0			0	74.6	25.4			45.9	0	54.1			29.7	70.3	0					
Total %	0	0	0		0	0	38.2	13		51.2	7.8	0	9.2		16.9	9.5	22.4	0		31.9	5.1	94.9	

	I-215 Northbound On Ramp Southbound				McCall Boulevard Westbound				I-215 Northbound Off Ramp Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	0	237	**103**	340	45	0	37	82	56	154	0	210	632
07:45 AM	0	0	0	0	0	**277**	97	**374**	42	0	47	89	49	156	0	205	668
08:00 AM	0	0	0	0	0	252	95	347	53	0	**75**	**128**	**64**	**162**	0	**226**	**701**
08:15 AM	0	0	0	0	0	269	71	340	**55**	0	53	108	52	133	0	185	633
Total Volume	0	0	0	0	0	1035	366	1401	195	0	212	407	221	605	0	826	2634
% App. Total	0	0	0		0	73.9	26.1		47.9	0	52.1		26.8	73.2	0		
PHF	.000	.000	.000	.000	.000	.934	.888	.936	.886	.000	.707	.795	.863	.934	.000	.914	.939

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City of Menifee
N/S: I-215 Northbound Ramps
E/W: McCall Boulevard
Weather: Clear

File Name : 02_MEN_215N_McC AM
Site Code : 05122850
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City of Menifee
N/S: I-215 Northbound Ramps
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File Name : 02_MEN_215N_McC AM
Site Code : 05122850
Start Date : 9/27/2022

	I-215 Northbound On Ramp Southbound				McCall Boulevard Westbound				I-215 Northbound Off Ramp Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:30 AM				07:30 AM				07:30 AM				07:30 AM				
+0 mins.	0	0	0	0	0	237	**103**	340	45	0	37	82	56	154	0	210	
+15 mins.	0	0	0	0	0	**277**	97	**374**	42	0	47	89	49	156	0	205	
+30 mins.	0	0	0	0	0	252	95	347	53	0	**75**	**128**	**64**	**162**	0	**226**	
+45 mins.	0	0	0	0	0	269	71	340	**55**	0	53	108	52	133	0	185	
Total Volume	0	0	0	0	0	1035	366	1401	195	0	212	407	221	605	0	826	
% App. Total	0	0	0		0	73.9	26.1		47.9	0	52.1		26.8	73.2	0		
PHF	.000	.000	.000	.000	.000	.934	.888	.936	.886	.000	.707	.795	.863	.934	.000	.914	

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City of Menifee
N/S: I-215 Northbound Ramps
E/W: McCall Boulevard
Weather: Clear

File Name : 02_MEN_215N_McC AM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 1

Groups Printed- Large 2 Axle Vehicles

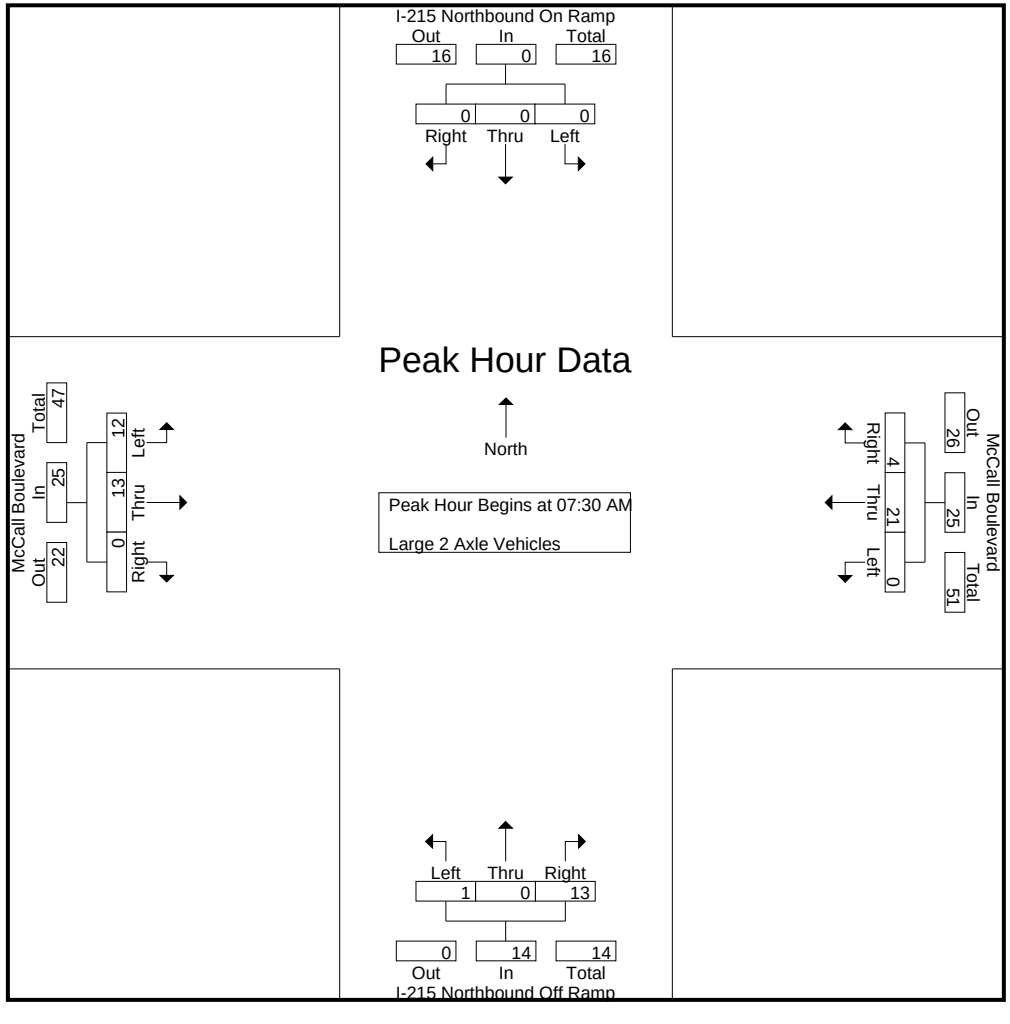
	I-215 Northbound On Ramp Southbound					McCall Boulevard Westbound					I-215 Northbound Off Ramp Northbound					McCall Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	3	7	0	0	10	0	14	14
07:15 AM	0	0	0	0	0	0	3	1	0	4	0	0	1	0	1	2	1	0	0	3	0	8	8
07:30 AM	0	0	0	0	0	0	4	0	0	4	0	0	2	2	2	0	2	0	0	2	2	8	10
07:45 AM	0	0	0	0	0	0	6	1	0	7	0	0	2	0	2	3	3	0	0	6	0	15	15
Total	0	0	0	0	0	0	17	2	0	19	0	0	5	2	5	8	13	0	0	21	2	45	47
08:00 AM	0	0	0	0	0	0	4	1	0	5	0	0	3	2	3	1	3	0	0	4	2	12	14
08:15 AM	0	0	0	0	0	0	7	2	0	9	1	0	6	5	7	8	5	0	0	13	5	29	34
08:30 AM	0	0	0	0	0	0	6	1	0	7	0	0	2	0	2	0	5	0	0	5	0	14	14
08:45 AM	0	0	0	0	0	0	4	0	0	4	2	0	1	0	3	0	0	0	0	0	0	7	7
Total	0	0	0	0	0	0	21	4	0	25	3	0	12	7	15	9	13	0	0	22	7	62	69
Grand Total	0	0	0	0	0	0	38	6	0	44	3	0	17	9	20	17	26	0	0	43	9	107	116
Apprch %	0	0	0			0	86.4	13.6			15	0	85			39.5	60.5	0					
Total %	0	0	0		0	0	35.5	5.6		41.1	2.8	0	15.9		18.7	15.9	24.3	0		40.2	7.8	92.2	

	I-215 Northbound On Ramp Southbound				McCall Boulevard Westbound				I-215 Northbound Off Ramp Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	0	4	0	4	0	0	2	2	0	2	0	2	8
07:45 AM	0	0	0	0	0	6	1	7	0	0	2	2	3	3	0	6	15
08:00 AM	0	0	0	0	0	4	1	5	0	0	3	3	1	3	0	4	12
08:15 AM	0	0	0	0	0	**7**	**2**	**9**	**1**	0	**6**	**7**	**8**	**5**	0	**13**	**29**
Total Volume	0	0	0	0	0	21	4	25	1	0	13	14	12	13	0	25	64
% App. Total	0	0	0		0	84	16		7.1	0	92.9		48	52	0		
PHF	.000	.000	.000	.000	.000	.750	.500	.694	.250	.000	.542	.500	.375	.650	.000	.481	.552

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City of Menifee
N/S: I-215 Northbound Ramps
E/W: McCall Boulevard
Weather: Clear

File Name : 02_MEN_215N_McC AM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 2



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City of Menifee
N/S: I-215 Northbound Ramps
E/W: McCall Boulevard
Weather: Clear

File Name : 02_MEN_215N_McC AM
Site Code : 05122850
Start Date : 9/27/2022

	I-215 Northbound On Ramp Southbound				McCall Boulevard Westbound				I-215 Northbound Off Ramp Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:30 AM				07:30 AM				07:30 AM				07:30 AM				
+0 mins.	0	0	0	0	0	4	0	4	0	0	2	2	0	2	0	2	
+15 mins.	0	0	0	0	0	6	1	7	0	0	2	2	3	3	0	6	
+30 mins.	0	0	0	0	0	4	1	5	0	0	3	3	1	3	0	4	
+45 mins.	0	0	0	0	0	**7**	**2**	**9**	**1**	0	**6**	**7**	**8**	**5**	0	**13**	
Total Volume	0	0	0	0	0	21	4	25	1	0	13	14	12	13	0	25	
% App. Total	0	0	0		0	84	16		7.1	0	92.9		48	52	0		
PHF	.000	.000	.000	.000	.000	.750	.500	.694	.250	.000	.542	.500	.375	.650	.000	.481	

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City of Menifee
N/S: I-215 Northbound Ramps
E/W: McCall Boulevard
Weather: Clear

File Name : 02_MEN_215N_McC AM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 1

Groups Printed- 3 Axle Vehicles

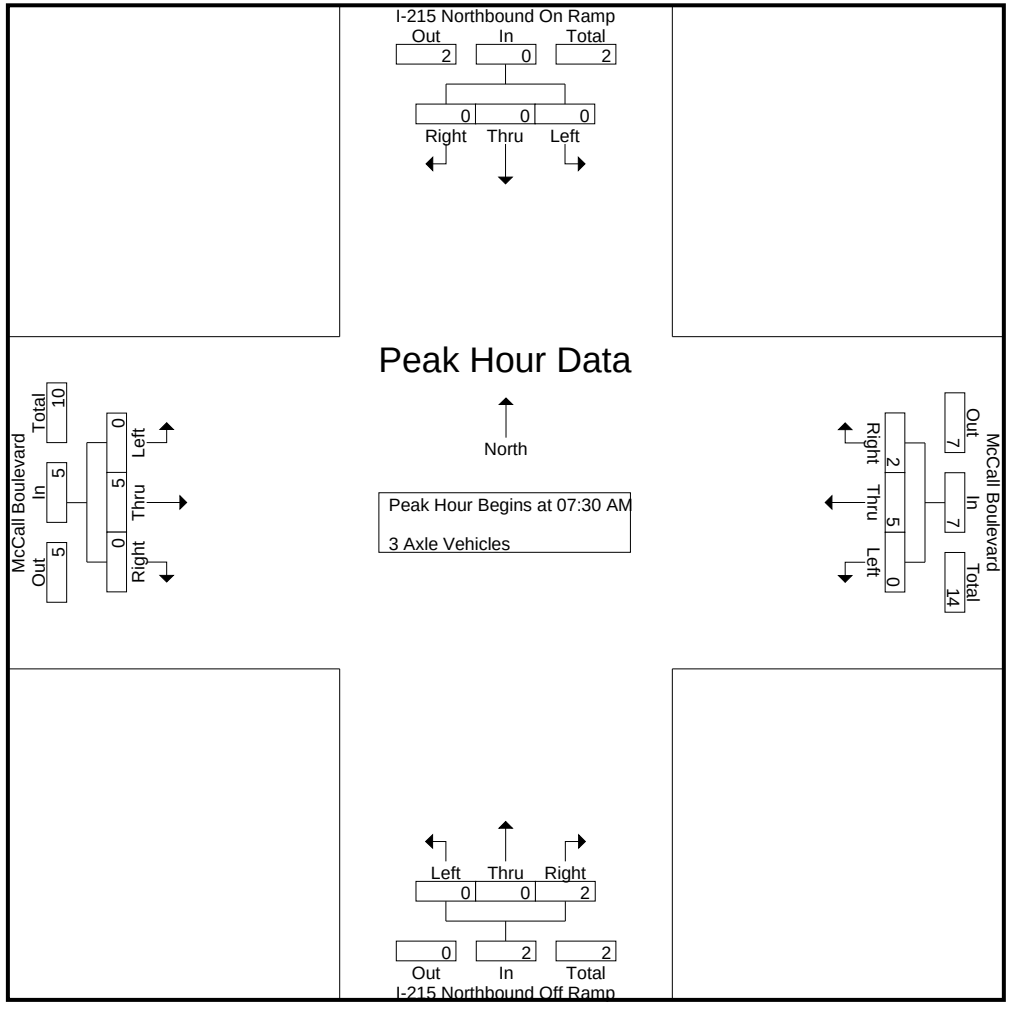
	I-215 Northbound On Ramp Southbound					McCall Boulevard Westbound					I-215 Northbound Off Ramp Northbound					McCall Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	2	2
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	0	5	5
Total	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	5	0	0	5	0	7	7
08:00 AM	0	0	0	0	0	0	1	1	0	2	0	0	1	1	1	0	1	0	0	1	1	4	5
08:15 AM	0	0	0	0	0	0	2	1	0	3	0	0	1	0	1	0	1	0	0	1	0	5	5
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	3	0	3	3
08:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	2	2
Total	0	0	0	0	0	0	4	2	0	6	0	0	2	1	2	1	5	0	0	6	1	14	15
Grand Total	0	0	0	0	0	0	6	2	0	8	0	0	2	1	2	1	10	0	0	11	1	21	22
Apprch %	0	0	0			0	75	25			0	0	100			9.1	90.9	0					
Total %	0	0	0		0	0	28.6	9.5		38.1	0	0	9.5		9.5	4.8	47.6	0		52.4	4.5	95.5	

	I-215 Northbound On Ramp Southbound				McCall Boulevard Westbound				I-215 Northbound Off Ramp Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	**2**	0	2	0	0	0	0	0	**3**	0	**3**	**5**
08:00 AM	0	0	0	0	0	1	**1**	2	0	0	**1**	**1**	0	1	0	1	4
08:15 AM	0	0	0	0	0	2	1	**3**	0	0	1	1	0	1	0	1	5
Total Volume	0	0	0	0	0	5	2	7	0	0	2	2	0	5	0	5	14
% App. Total	0	0	0		0	71.4	28.6		0	0	100		0	100	0		
PHF	.000	.000	.000	.000	.000	.625	.500	.583	.000	.000	.500	.500	.000	.417	.000	.417	.700

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City of Menifee
N/S: I-215 Northbound Ramps
E/W: McCall Boulevard
Weather: Clear

File Name : 02_MEN_215N_McC AM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 2



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City of Menifee
N/S: I-215 Northbound Ramps
E/W: McCall Boulevard
Weather: Clear

File Name : 02_MEN_215N_McC AM
Site Code : 05122850
Start Date : 9/27/2022

	I-215 Northbound On Ramp Southbound				McCall Boulevard Westbound				I-215 Northbound Off Ramp Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:30 AM				07:30 AM				07:30 AM				07:30 AM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
+15 mins.	0	0	0	0	0	**2**	0	2	0	0	0	0	0	**3**	0	**3**	
+30 mins.	0	0	0	0	0	1	**1**	2	0	0	**1**	**1**	0	1	0	1	
+45 mins.	0	0	0	0	0	2	1	**3**	0	0	1	1	0	1	0	1	
Total Volume	0	0	0	0	0	5	2	7	0	0	2	2	0	5	0	5	
% App. Total	0	0	0		0	71.4	28.6		0	0	100		0	100	0		
PHF	.000	.000	.000	.000	.000	.625	.500	.583	.000	.000	.500	.500	.000	.417	.000	.417	

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City of Menifee
N/S: I-215 Northbound Ramps
E/W: McCall Boulevard
Weather: Clear

File Name : 02_MEN_215N_McC AM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 1

Groups Printed- 4+ Axle Trucks

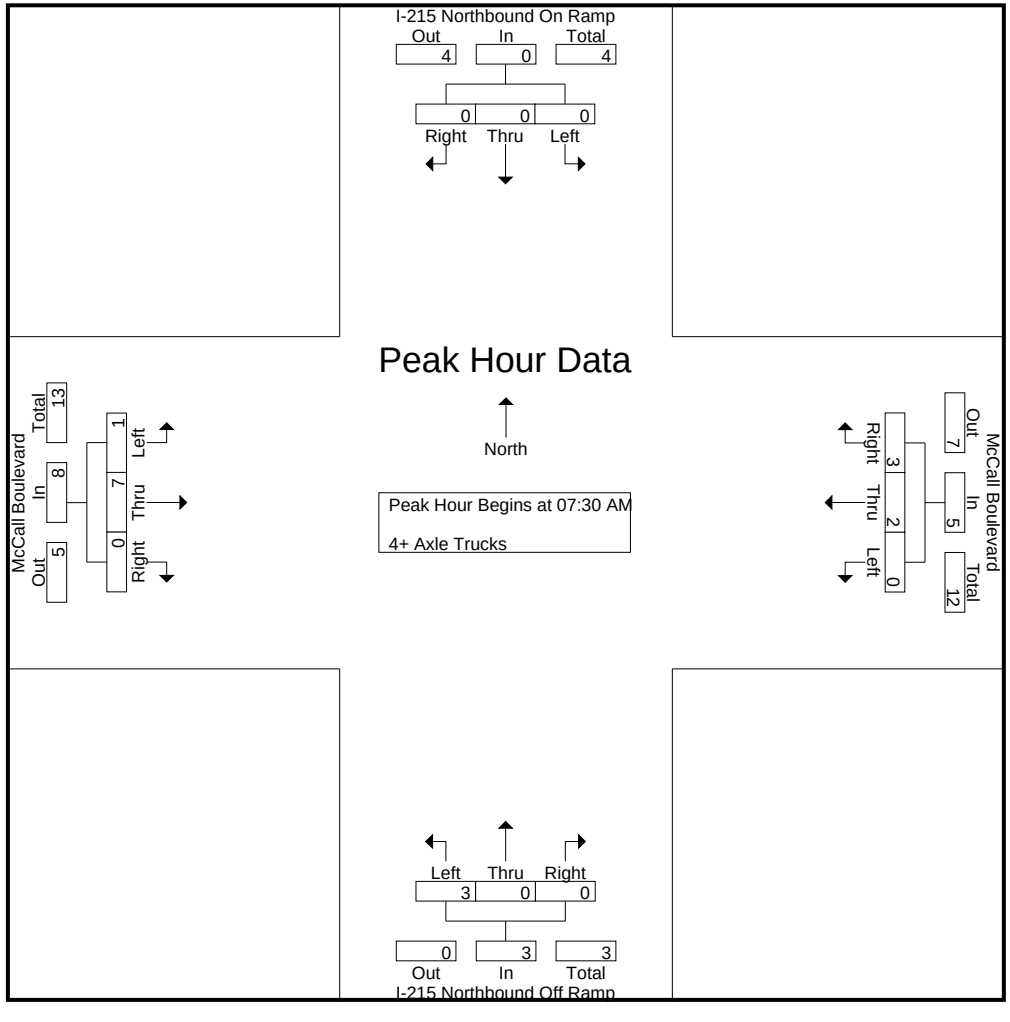
	I-215 Northbound On Ramp Southbound					McCall Boulevard Westbound					I-215 Northbound Off Ramp Northbound					McCall Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	2	0	0	2	0	6	6
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	2	2
07:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	0	0	2	0	3	3
07:45 AM	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	0	2	0	0	2	0	4	4
Total	0	0	0	0	0	0	4	1	0	5	2	0	0	0	2	0	8	0	0	8	0	15	15
08:00 AM	0	0	0	0	0	0	1	1	0	2	1	0	0	0	1	0	3	0	0	3	0	6	6
08:15 AM	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	1	0	0	0	1	0	3	3
08:30 AM	0	0	0	0	0	0	1	3	0	4	1	0	0	0	1	0	0	0	0	0	0	5	5
08:45 AM	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	2	0	0	2	0	4	4
Total	0	0	0	0	0	0	4	6	0	10	2	0	0	0	2	1	5	0	0	6	0	18	18
Grand Total	0	0	0	0	0	0	8	7	0	15	4	0	0	0	4	1	13	0	0	14	0	33	33
Apprch %	0	0	0			0	53.3	46.7			100	0	0			7.1	92.9	0					
Total %	0	0	0		0	0	24.2	21.2		45.5	12.1	0	0		12.1	3	39.4	0		42.4	0	100	

	I-215 Northbound On Ramp Southbound				McCall Boulevard Westbound				I-215 Northbound Off Ramp Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	0	0	0	0	**1**	0	0	**1**	0	2	0	2	3
07:45 AM	0	0	0	0	0	0	**1**	1	1	0	0	1	0	2	0	2	4
08:00 AM	0	0	0	0	0	**1**	1	**2**	1	0	0	1	0	**3**	0	**3**	**6**
08:15 AM	0	0	0	0	0	1	1	2	0	0	0	0	**1**	0	0	1	3
Total Volume	0	0	0	0	0	2	3	5	3	0	0	3	1	7	0	8	16
% App. Total	0	0	0		0	40	60		100	0	0		12.5	87.5	0		
PHF	.000	.000	.000	.000	.000	.500	.750	.625	.750	.000	.000	.750	.250	.583	.000	.667	.667

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City of Menifee
N/S: I-215 Northbound Ramps
E/W: McCall Boulevard
Weather: Clear

File Name : 02_MEN_215N_McC AM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 2



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City of Menifee
N/S: I-215 Northbound Ramps
E/W: McCall Boulevard
Weather: Clear

File Name : 02_MEN_215N_McC AM
Site Code : 05122850
Start Date : 9/27/2022

	I-215 Northbound On Ramp Southbound				McCall Boulevard Westbound				I-215 Northbound Off Ramp Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:30 AM				07:30 AM				07:30 AM				07:30 AM				
+0 mins.	0	0	0	0	0	0	0	0	**1**	0	0	**1**	0	2	0	2	
+15 mins.	0	0	0	0	0	0	**1**	1	1	0	0	1	0	2	0	2	
+30 mins.	0	0	0	0	0	**1**	1	**2**	1	0	0	1	0	**3**	0	**3**	
+45 mins.	0	0	0	0	0	1	1	2	0	0	0	0	**1**	0	0	1	
Total Volume	0	0	0	0	0	2	3	5	3	0	0	3	1	7	0	8	
% App. Total	0	0	0		0	40	60		100	0	0		12.5	87.5	0		
PHF	.000	.000	.000	.000	.000	.500	.750	.625	.750	.000	.000	.750	.250	.583	.000	.667	

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City of Menifee
N/S: I-215 Northbound Ramps
E/W: McCall Boulevard
Weather: Clear

File Name : 02_MEN_215N_McC PM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

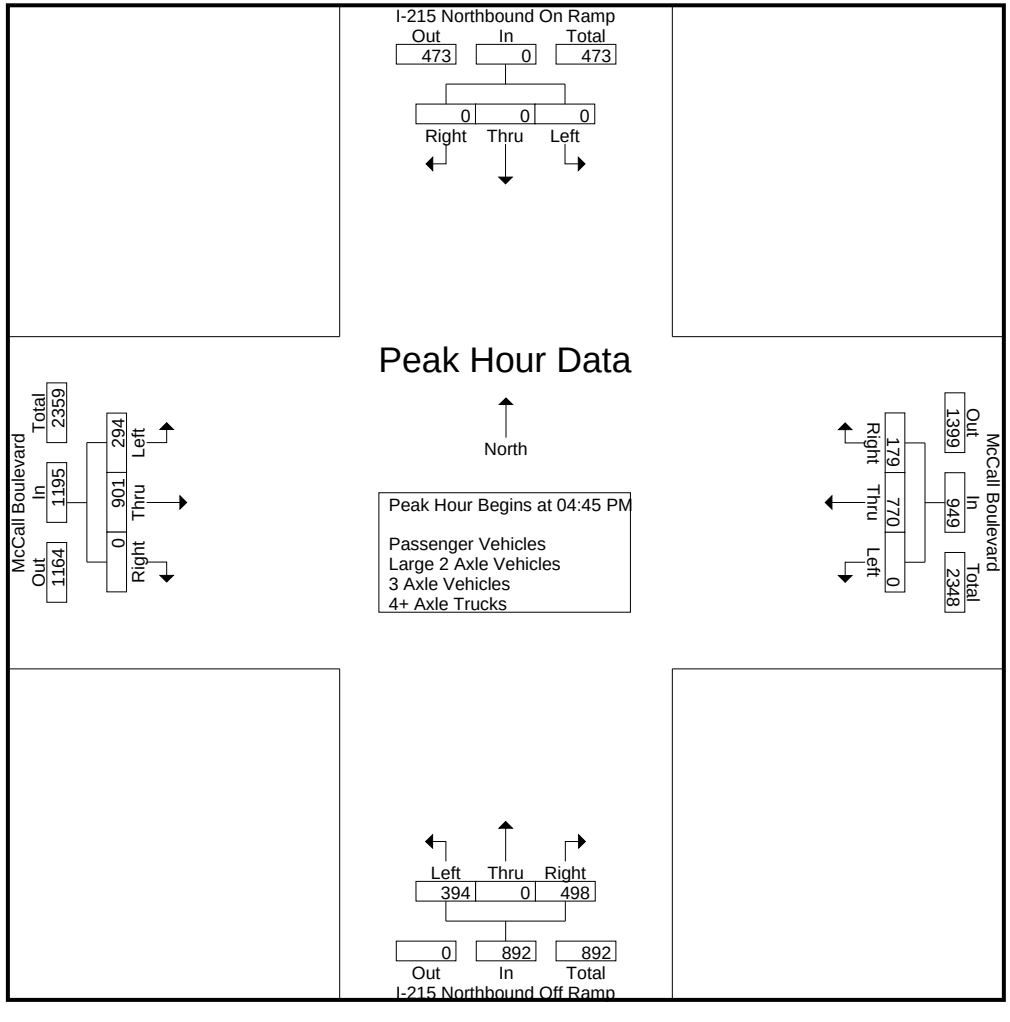
	I-215 Northbound On Ramp Southbound					McCall Boulevard Westbound					I-215 Northbound Off Ramp Northbound					McCall Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	177	46	1	223	113	1	126	29	240	58	217	0	0	275	30	738	768
04:15 PM	0	0	0	0	0	0	180	35	0	215	99	1	110	30	210	56	199	0	0	255	30	680	710
04:30 PM	0	0	0	0	0	0	201	32	0	233	102	0	122	27	224	70	224	0	0	294	27	751	778
04:45 PM	0	0	0	0	0	0	190	30	0	220	117	0	136	37	253	73	221	0	0	294	37	767	804
Total	0	0	0	0	0	0	748	143	1	891	431	2	494	123	927	257	861	0	0	1118	124	2936	3060
05:00 PM	0	0	0	0	0	0	179	45	0	224	100	0	122	19	222	83	233	0	0	316	19	762	781
05:15 PM	0	0	0	0	0	0	195	44	0	239	65	0	113	32	178	79	232	0	0	311	32	728	760
05:30 PM	0	0	0	0	0	0	206	60	0	266	112	0	127	35	239	59	215	0	0	274	35	779	814
05:45 PM	0	0	0	0	0	0	147	31	0	178	98	0	119	31	217	60	222	0	0	282	31	677	708
Total	0	0	0	0	0	0	727	180	0	907	375	0	481	117	856	281	902	0	0	1183	117	2946	3063
Grand Total	0	0	0	0	0	0	1475	323	1	1798	806	2	975	240	1783	538	1763	0	0	2301	241	5882	6123
Apprch %	0	0	0			0	82	18			45.2	0.1	54.7			23.4	76.6	0					
Total %	0	0	0		0	0	25.1	5.5		30.6	13.7	0	16.6		30.3	9.1	30	0		39.1	3.9	96.1	
Passenger Vehicles	0	0	0		0	0	1465	310		1776	799	2	961		1999	524	1741	0		2265	0	0	6040
% Passenger Vehicles	0	0	0	0	0	0	99.3	96	100	98.7	99.1	100	98.6	98.8	98.8	97.4	98.8	0	0	98.4	0	0	98.6
Large 2 Axle Vehicles	0	0	0		0	0	10	10		20	6	0	11		19	11	19	0		30	0	0	69
% Large 2 Axle Vehicles	0	0	0	0	0	0	0.7	3.1	0	1.1	0.7	0	1.1	0.8	0.9	2	1.1	0	0	1.3	0	0	1.1
3 Axle Vehicles	0	0	0		0	0	0	2		2	1	0	2		4	2	1	0		3	0	0	9
% 3 Axle Vehicles	0	0	0	0	0	0	0	0.6	0	0.1	0.1	0	0.2	0.4	0.2	0.4	0.1	0	0	0.1	0	0	0.1
4+ Axle Trucks	0	0	0		0	0	0	1		1	0	0	1		1	1	2	0		3	0	0	5
% 4+ Axle Trucks	0	0	0	0	0	0	0	0.3	0	0.1	0	0	0.1	0	0	0.2	0.1	0	0	0.1	0	0	0.1

	I-215 Northbound On Ramp Southbound				McCall Boulevard Westbound				I-215 Northbound Off Ramp Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	0	190	30	220	**117**	0	**136**	**253**	73	221	0	294	767
05:00 PM	0	0	0	0	0	179	45	224	100	0	122	222	**83**	**233**	0	**316**	762
05:15 PM	0	0	0	0	0	195	44	239	65	0	113	178	79	232	0	311	728
05:30 PM	0	0	0	0	0	**206**	**60**	**266**	112	0	127	239	59	215	0	274	**779**
Total Volume	0	0	0	0	0	770	179	949	394	0	498	892	294	901	0	1195	3036
% App. Total	0	0	0		0	81.1	18.9		44.2	0	55.8		24.6	75.4	0		
PHF	.000	.000	.000	.000	.000	.934	.746	.892	.842	.000	.915	.881	.886	.967	.000	.945	.974

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City of Menifee
N/S: I-215 Northbound Ramps
E/W: McCall Boulevard
Weather: Clear

File Name : 02_MEN_215N_McC PM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 2



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City of Menifee
N/S: I-215 Northbound Ramps
E/W: McCall Boulevard
Weather: Clear

File Name : 02_MEN_215N_McC PM
Site Code : 05122850
Start Date : 9/27/2022

	I-215 Northbound On Ramp Southbound				McCall Boulevard Westbound				I-215 Northbound Off Ramp Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:00 PM				04:45 PM				04:00 PM				04:30 PM				
+0 mins.	0	0	0	0	0	190	30	220	113	**1**	126	240	70	224	0	294	
+15 mins.	0	0	0	0	0	179	45	224	99	1	110	210	73	221	0	294	
+30 mins.	0	0	0	0	0	195	44	239	102	0	122	224	**83**	**233**	0	**316**	
+45 mins.	0	0	0	0	0	**206**	**60**	**266**	**117**	0	**136**	**253**	79	232	0	311	
Total Volume	0	0	0	0	0	770	179	949	431	2	494	927	305	910	0	1215	
% App. Total	0	0	0		0	81.1	18.9		46.5	0.2	53.3		25.1	74.9	0		
PHF	.000	.000	.000	.000	.000	.934	.746	.892	.921	.500	.908	.916	.919	.976	.000	.961	

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City of Menifee
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E/W: McCall Boulevard
Weather: Clear

File Name : 02_MEN_215N_McC PM
Site Code : 05122850
Start Date : 9/27/2022
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Groups Printed- Passenger Vehicles

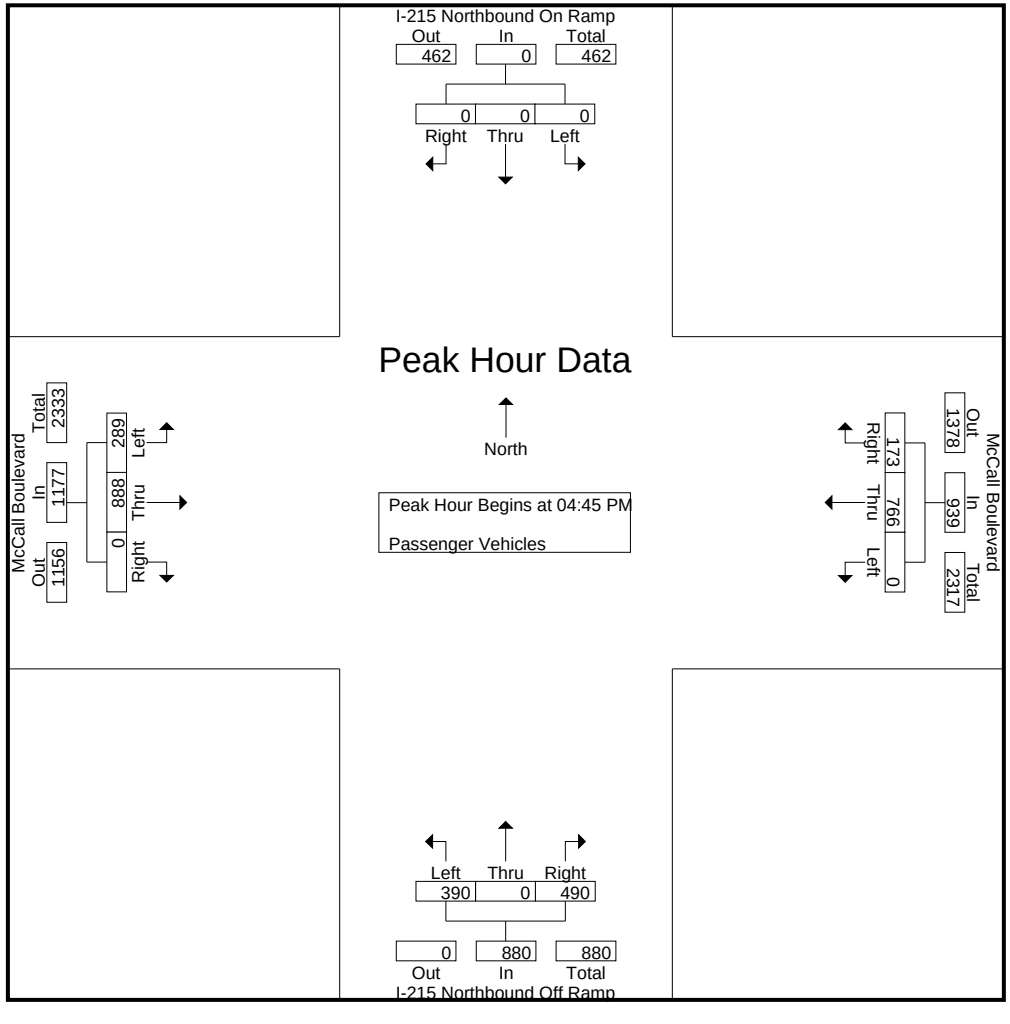
	I-215 Northbound On Ramp Southbound					McCall Boulevard Westbound					I-215 Northbound Off Ramp Northbound					McCall Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	175	40	1	215	112	1	124	29	237	55	215	0	0	270	30	722	752
04:15 PM	0	0	0	0	0	0	178	35	0	213	98	1	109	29	208	53	197	0	0	250	29	671	700
04:30 PM	0	0	0	0	0	0	200	32	0	232	102	0	121	27	223	69	221	0	0	290	27	745	772
04:45 PM	0	0	0	0	0	0	189	30	0	219	116	0	134	37	250	72	215	0	0	287	37	756	793
Total	0	0	0	0	0	0	742	137	1	879	428	2	488	122	918	249	848	0	0	1097	123	2894	3017
05:00 PM	0	0	0	0	0	0	177	42	0	219	98	0	119	18	217	82	230	0	0	312	18	748	766
05:15 PM	0	0	0	0	0	0	195	41	0	236	64	0	112	32	176	77	230	0	0	307	32	719	751
05:30 PM	0	0	0	0	0	0	205	60	0	265	112	0	125	35	237	58	213	0	0	271	35	773	808
05:45 PM	0	0	0	0	0	0	146	30	0	176	97	0	117	30	214	58	220	0	0	278	30	668	698
Total	0	0	0	0	0	0	723	173	0	896	371	0	473	115	844	275	893	0	0	1168	115	2908	3023
Grand Total	0	0	0	0	0	0	1465	310	1	1775	799	2	961	237	1762	524	1741	0	0	2265	238	5802	6040
Apprch %	0	0	0			0	82.5	17.5			45.3	0.1	54.5			23.1	76.9	0					
Total %	0	0	0		0	0	25.2	5.3		30.6	13.8	0	16.6		30.4	9	30	0		39	3.9	96.1	

	I-215 Northbound On Ramp Southbound				McCall Boulevard Westbound				I-215 Northbound Off Ramp Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	0	189	30	219	**116**	0	**134**	**250**	72	215	0	287	756
05:00 PM	0	0	0	0	0	177	42	219	98	0	119	217	**82**	**230**	0	**312**	748
05:15 PM	0	0	0	0	0	195	41	236	64	0	112	176	77	230	0	307	719
05:30 PM	0	0	0	0	0	**205**	**60**	**265**	112	0	125	237	58	213	0	271	**773**
Total Volume	0	0	0	0	0	766	173	939	390	0	490	880	289	888	0	1177	2996
% App. Total	0	0	0		0	81.6	18.4		44.3	0	55.7		24.6	75.4	0		
PHF	.000	.000	.000	.000	.000	.934	.721	.886	.841	.000	.914	.880	.881	.965	.000	.943	.969

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City of Menifee
N/S: I-215 Northbound Ramps
E/W: McCall Boulevard
Weather: Clear

File Name : 02_MEN_215N_McC PM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 2



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City of Menifee
N/S: I-215 Northbound Ramps
E/W: McCall Boulevard
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File Name : 02_MEN_215N_McC PM
Site Code : 05122850
Start Date : 9/27/2022

	I-215 Northbound On Ramp Southbound				McCall Boulevard Westbound				I-215 Northbound Off Ramp Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:45 PM				04:45 PM				04:45 PM				04:45 PM				
+0 mins.	0	0	0	0	0	189	30	219	**116**	0	**134**	**250**	72	215	0	287	
+15 mins.	0	0	0	0	0	177	42	219	98	0	119	217	**82**	**230**	0	**312**	
+30 mins.	0	0	0	0	0	195	41	236	64	0	112	176	77	230	0	307	
+45 mins.	0	0	0	0	0	**205**	**60**	**265**	112	0	125	237	58	213	0	271	
Total Volume	0	0	0	0	0	766	173	939	390	0	490	880	289	888	0	1177	
% App. Total	0	0	0		0	81.6	18.4		44.3	0	55.7		24.6	75.4	0		
PHF	.000	.000	.000	.000	.000	.934	.721	.886	.841	.000	.914	.880	.881	.965	.000	.943	

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City of Menifee
N/S: I-215 Northbound Ramps
E/W: McCall Boulevard
Weather: Clear

File Name : 02_MEN_215N_McC PM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 1

Groups Printed- Large 2 Axle Vehicles

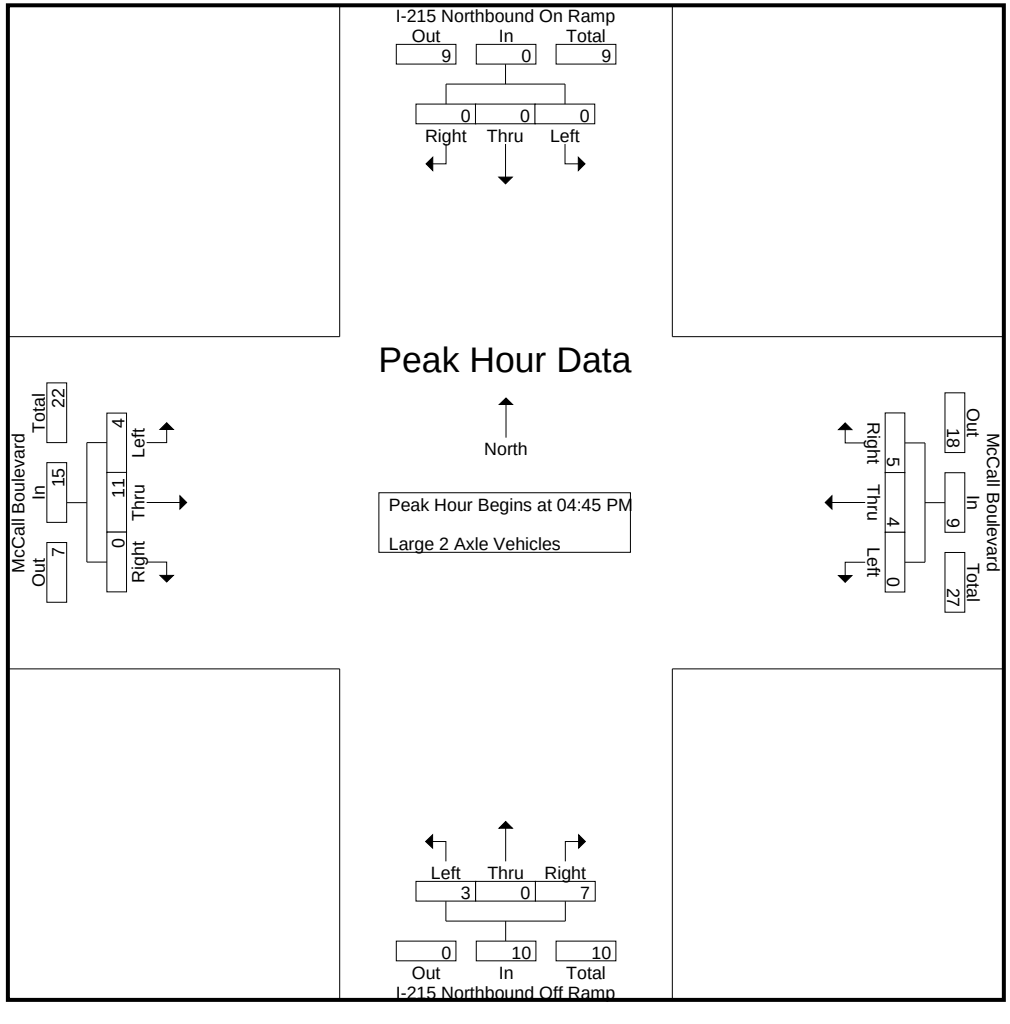
	I-215 Northbound On Ramp Southbound					McCall Boulevard Westbound					I-215 Northbound Off Ramp Northbound					McCall Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	2	4	0	6	1	0	1	0	2	2	2	0	0	4	0	12	12
04:15 PM	0	0	0	0	0	0	2	0	0	2	1	0	1	1	2	2	1	0	0	3	1	7	8
04:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	1	3	0	0	4	0	6	6
04:45 PM	0	0	0	0	0	0	1	0	0	1	1	0	2	0	3	0	5	0	0	5	0	9	9
Total	0	0	0	0	0	0	6	4	0	10	3	0	5	1	8	5	11	0	0	16	1	34	35
05:00 PM	0	0	0	0	0	0	2	3	0	5	2	0	2	1	4	1	2	0	0	3	1	12	13
05:15 PM	0	0	0	0	0	0	0	2	0	2	0	0	1	0	1	2	2	0	0	4	0	7	7
05:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	2	0	2	1	2	0	0	3	0	6	6
05:45 PM	0	0	0	0	0	0	1	1	0	2	1	0	1	0	2	2	2	0	0	4	0	8	8
Total	0	0	0	0	0	0	4	6	0	10	3	0	6	1	9	6	8	0	0	14	1	33	34
Grand Total	0	0	0	0	0	0	10	10	0	20	6	0	11	2	17	11	19	0	0	30	2	67	69
Apprch %	0	0	0			0	50	50			35.3	0	64.7			36.7	63.3	0					
Total %	0	0	0		0	0	14.9	14.9		29.9	9	0	16.4		25.4	16.4	28.4	0		44.8	2.9	97.1	

	I-215 Northbound On Ramp Southbound				McCall Boulevard Westbound				I-215 Northbound Off Ramp Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	0	1	0	1	1	0	**2**	3	0	**5**	0	**5**	9
05:00 PM	0	0	0	0	0	**2**	**3**	**5**	**2**	0	2	**4**	1	2	0	3	**12**
05:15 PM	0	0	0	0	0	0	2	2	0	0	1	1	**2**	2	0	4	7
05:30 PM	0	0	0	0	0	1	0	1	0	0	2	2	1	2	0	3	6
Total Volume	0	0	0	0	0	4	5	9	3	0	7	10	4	11	0	15	34
% App. Total	0	0	0		0	44.4	55.6		30	0	70		26.7	73.3	0		
PHF	.000	.000	.000	.000	.000	.500	.417	.450	.375	.000	.875	.625	.500	.550	.000	.750	.708

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City of Menifee
N/S: I-215 Northbound Ramps
E/W: McCall Boulevard
Weather: Clear

File Name : 02_MEN_215N_McC PM
Site Code : 05122850
Start Date : 9/27/2022
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City of Menifee
N/S: I-215 Northbound Ramps
E/W: McCall Boulevard
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File Name : 02_MEN_215N_McC PM
Site Code : 05122850
Start Date : 9/27/2022

	I-215 Northbound On Ramp Southbound				McCall Boulevard Westbound				I-215 Northbound Off Ramp Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:45 PM				04:45 PM				04:45 PM				04:45 PM				
+0 mins.	0	0	0	0	0	1	0	1	1	0	**2**	3	0	**5**	0	**5**	
+15 mins.	0	0	0	0	0	**2**	**3**	**5**	**2**	0	2	**4**	1	2	0	3	
+30 mins.	0	0	0	0	0	0	2	2	0	0	1	1	**2**	2	0	4	
+45 mins.	0	0	0	0	0	1	0	1	0	0	2	2	1	2	0	3	
Total Volume	0	0	0	0	0	4	5	9	3	0	7	10	4	11	0	15	
% App. Total	0	0	0		0	44.4	55.6		30	0	70		26.7	73.3	0		
PHF	.000	.000	.000	.000	.000	.500	.417	.450	.375	.000	.875	.625	.500	.550	.000	.750	

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City of Menifee
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Weather: Clear

File Name : 02_MEN_215N_McC PM
Site Code : 05122850
Start Date : 9/27/2022
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Groups Printed- 3 Axle Vehicles

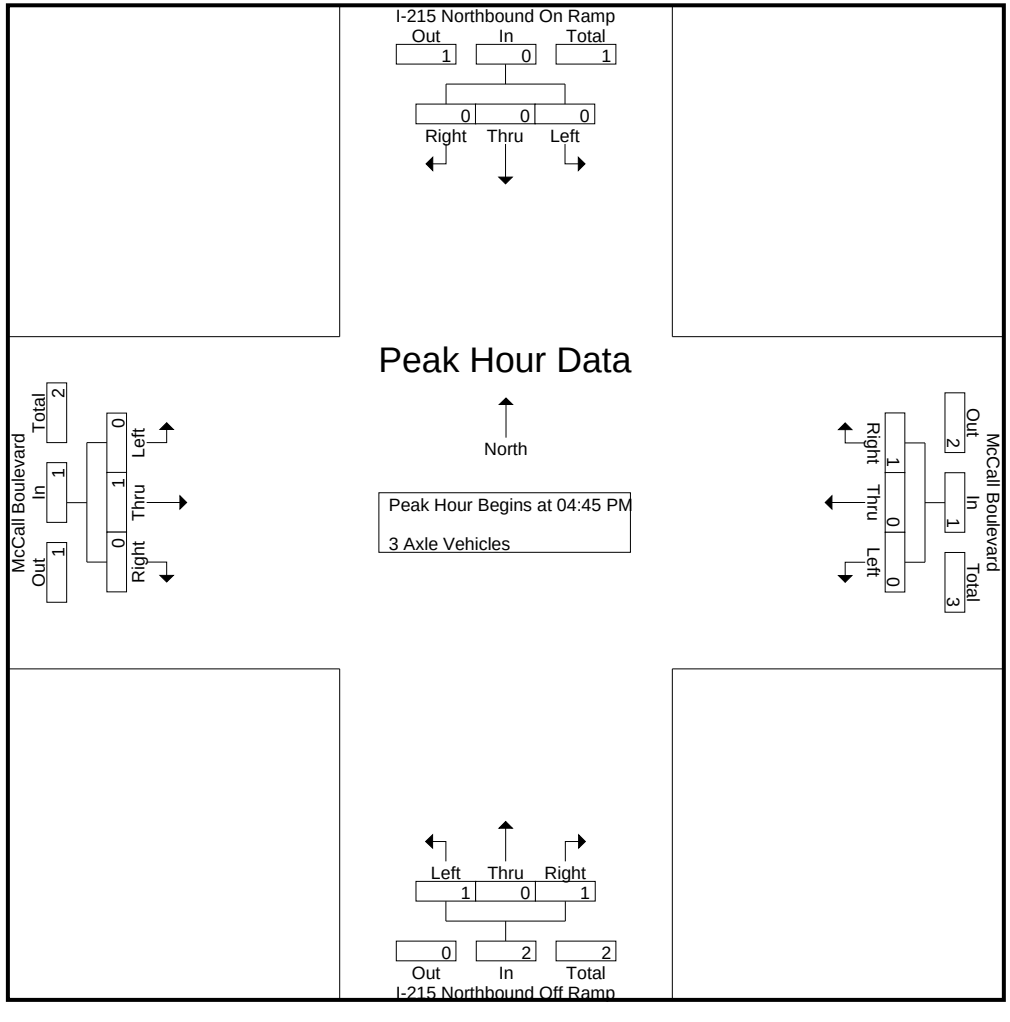
	I-215 Northbound On Ramp Southbound					McCall Boulevard Westbound					I-215 Northbound Off Ramp Northbound					McCall Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	0	0	1	0	2	2
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	1
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1
Total	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2	1	0	0	3	0	4	4
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	1
05:15 PM	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	0	2	2
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	1	1	2
Total	0	0	0	0	0	0	0	1	0	1	1	0	2	1	3	0	0	0	0	0	1	4	5
Grand Total	0	0	0	0	0	0	0	2	0	2	1	0	2	1	3	2	1	0	0	3	1	8	9
Apprch %	0	0	0			0	0	100			33.3	0	66.7			66.7	33.3	0					
Total %	0	0	0		0	0	0	25		25	12.5	0	25		37.5	25	12.5	0		37.5	11.1	88.9	

	I-215 Northbound On Ramp Southbound				McCall Boulevard Westbound				I-215 Northbound Off Ramp Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	**1**	1
05:00 PM	0	0	0	0	0	0	0	0	0	0	**1**	**1**	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	**1**	**1**	**1**	0	0	1	0	0	0	0	**2**
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	1	1	1	0	1	2	0	1	0	1	4
% App. Total	0	0	0		0	0	100		50	0	50		0	100	0		
PHF	.000	.000	.000	.000	.000	.000	.250	.250	.250	.000	.250	.500	.000	.250	.000	.250	.500

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City of Menifee
N/S: I-215 Northbound Ramps
E/W: McCall Boulevard
Weather: Clear

File Name : 02_MEN_215N_McC PM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 2



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City of Menifee
N/S: I-215 Northbound Ramps
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File Name : 02_MEN_215N_McC PM
Site Code : 05122850
Start Date : 9/27/2022

	I-215 Northbound On Ramp Southbound				McCall Boulevard Westbound				I-215 Northbound Off Ramp Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:45 PM				04:45 PM				04:45 PM				04:45 PM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	**1**	
+15 mins.	0	0	0	0	0	0	0	0	0	0	**1**	**1**	0	0	0	0	
+30 mins.	0	0	0	0	0	0	**1**	**1**	**1**	0	0	1	0	0	0	0	
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Volume	0	0	0	0	0	0	1	1	1	0	1	2	0	1	0	1	
% App. Total	0	0	0		0	0	100		50	0	50		0	100	0		
PHF	.000	.000	.000	.000	.000	.000	.250	.250	.250	.000	.250	.500	.000	.250	.000	.250	

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951)268-6268

City of Menifee
N/S: I-215 Northbound Ramps
E/W: McCall Boulevard
Weather: Clear

File Name : 02_MEN_215N_McC PM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 1

Groups Printed- 4+ Axle Trucks

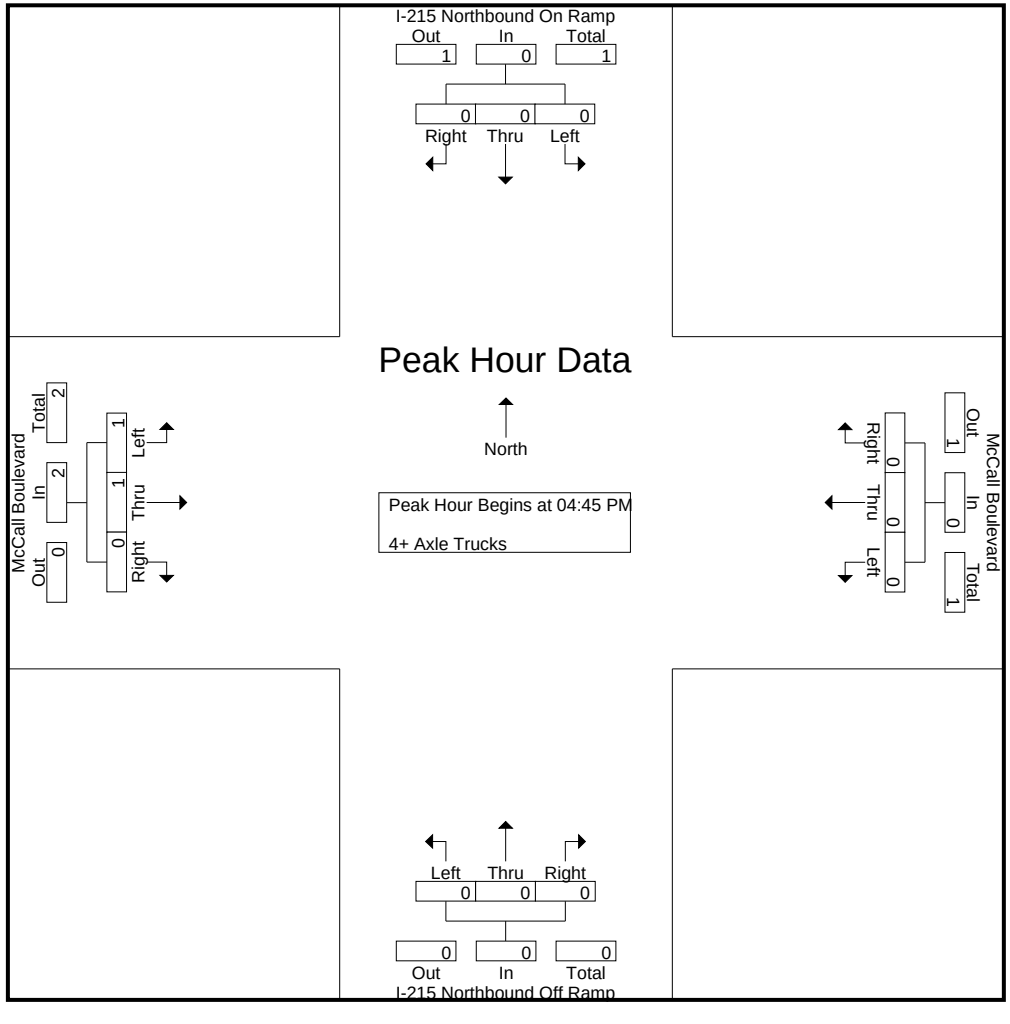
	I-215 Northbound On Ramp Southbound					McCall Boulevard Westbound					I-215 Northbound Off Ramp Northbound					McCall Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0	0	2	2
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	1
Total	0	0	0	0	0	0	0	1	0	1	0	0	1	0	1	1	1	0	0	2	0	4	4
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1
Grand Total	0	0	0	0	0	0	0	1	0	1	0	0	1	0	1	1	2	0	0	3	0	5	5
Apprch %	0	0	0			0	0	100			0	0	100			33.3	66.7	0					
Total %	0	0	0		0	0	0	20		20	0	0	20		20	20	40	0		60	0	100	

	I-215 Northbound On Ramp Southbound				McCall Boulevard Westbound				I-215 Northbound Off Ramp Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	0	**1**	**1**
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	1	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	2
% App. Total	0	0	0		0	0	0		0	0	0		50	50	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.000	.500	.500

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City of Menifee
N/S: I-215 Northbound Ramps
E/W: McCall Boulevard
Weather: Clear

File Name : 02_MEN_215N_McC PM
Site Code : 05122850
Start Date : 9/27/2022
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City of Menifee
N/S: I-215 Northbound Ramps
E/W: McCall Boulevard
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File Name : 02_MEN_215N_McC PM
Site Code : 05122850
Start Date : 9/27/2022

	I-215 Northbound On Ramp Southbound				McCall Boulevard Westbound				I-215 Northbound Off Ramp Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:45 PM				04:45 PM				04:45 PM				04:45 PM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	0	**1**	
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	1	
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	
% App. Total	0	0	0		0	0	0		0	0	0		50	50	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.000	.500	

Location: Menifee
N/S: I-215 NB Ramps
E/W: McCall Boulevard

Date: 9/27/2022
Day: Tuesday

PEDESTRIANS

	North Leg I-215 NB Ramps	East Leg McCall Boulevard	South Leg I-215 NB Ramps	West Leg McCall Boulevard	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	1	0	1
8:30 AM	0	0	0	0	0
8:45 AM	0	0	1	0	1
TOTAL VOLUMES:	0	0	2	0	2

	North Leg I-215 NB Ramps	East Leg McCall Boulevard	South Leg I-215 NB Ramps	West Leg McCall Boulevard	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

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Location: Menifee
N/S: I-215 NB Ramps
E/W: McCall Boulevard

Date: 9/27/2022
Day: Tuesday

BICYCLES

	Southbound I-215 NB Ramps			Westbound McCall Boulevard			Northbound I-215 NB Ramps			Eastbound McCall Boulevard			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	1	0	0	0	0	0	1	0	2

	Southbound I-215 NB Ramps			Westbound McCall Boulevard			Northbound I-215 NB Ramps			Eastbound McCall Boulevard			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

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City of Menifee
N/S: Encanto Drive
E/W: McCall Boulevard
Weather: Clear

File Name : 03_MEN_Enc_McC AM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 1

Groups Printed- Total Volume

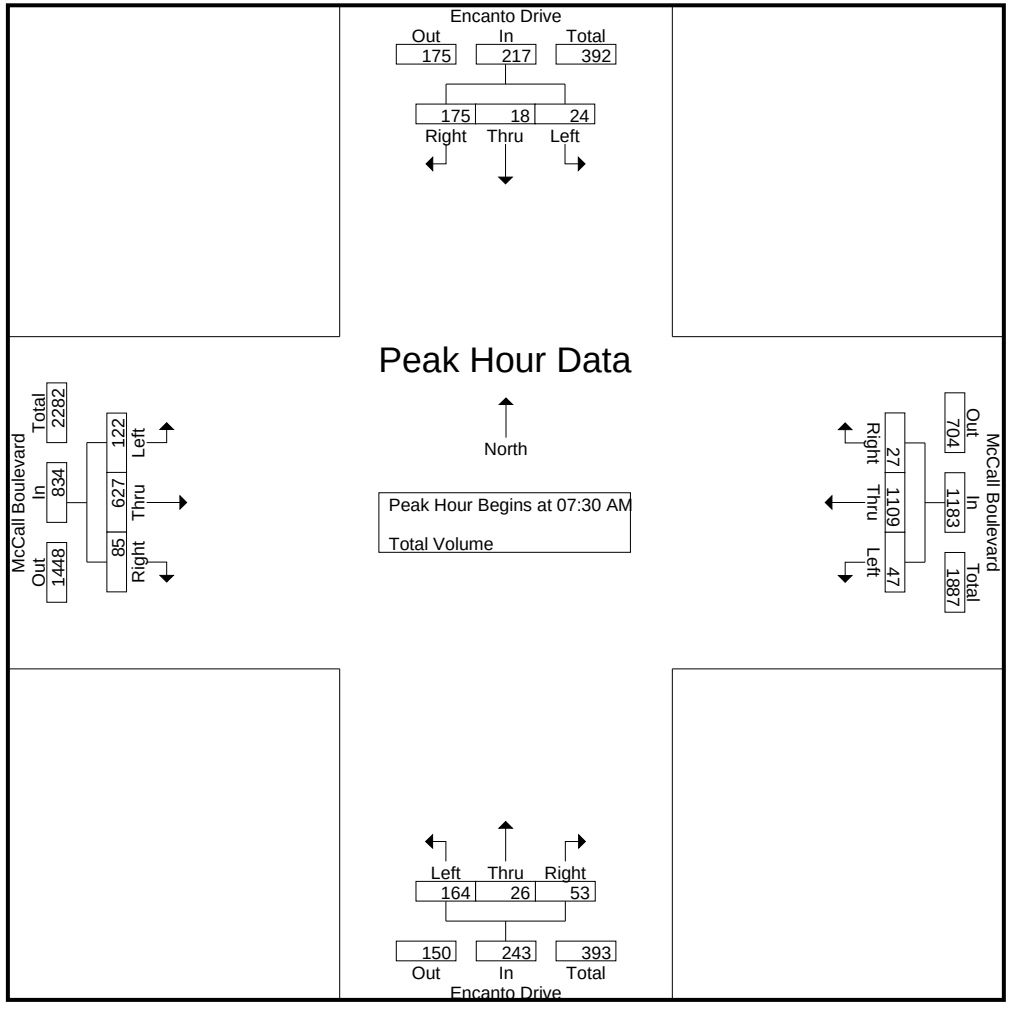
	Encanto Drive Southbound					McCall Boulevard Westbound					Encanto Drive Northbound					McCall Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	2	1	26	13	29	1	205	5	1	211	28	1	12	5	41	17	128	19	0	164	19	445	464
07:15 AM	6	1	29	14	36	3	212	3	0	218	56	4	32	15	92	16	164	16	4	196	33	542	575
07:30 AM	8	1	25	5	34	11	286	6	0	303	47	5	18	10	70	18	160	19	3	197	18	604	622
07:45 AM	4	4	34	11	42	16	300	8	0	324	43	2	12	8	57	25	163	16	2	204	21	627	648
Total	20	7	114	43	141	31	1003	22	1	1056	174	12	74	38	260	76	615	70	9	761	91	2218	2309
08:00 AM	7	5	51	12	63	10	279	6	0	295	35	8	8	4	51	45	162	30	3	237	19	646	665
08:15 AM	5	8	65	12	78	10	244	7	0	261	39	11	15	10	65	34	142	20	3	196	25	600	625
08:30 AM	6	3	30	14	39	13	211	3	0	227	38	3	9	5	50	42	123	29	10	194	29	510	539
08:45 AM	3	2	28	18	33	4	165	1	0	170	31	6	4	3	41	22	109	26	1	157	22	401	423
Total	21	18	174	56	213	37	899	17	0	953	143	28	36	22	207	143	536	105	17	784	95	2157	2252
Grand Total	41	25	288	99	354	68	1902	39	1	2009	317	40	110	60	467	219	1151	175	26	1545	186	4375	4561
Apprch %	11.6	7.1	81.4			3.4	94.7	1.9			67.9	8.6	23.6			14.2	74.5	11.3					
Total %	0.9	0.6	6.6		8.1	1.6	43.5	0.9		45.9	7.2	0.9	2.5		10.7	5	26.3	4		35.3	4.1	95.9	

	Encanto Drive Southbound				McCall Boulevard Westbound				Encanto Drive Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	**8**	1	25	34	11	286	6	303	**47**	5	**18**	**70**	18	160	19	197	604
07:45 AM	4	4	34	42	**16**	**300**	**8**	**324**	43	2	12	57	25	**163**	16	204	627
08:00 AM	7	5	51	63	10	279	6	295	35	8	8	51	**45**	162	**30**	**237**	**646**
08:15 AM	5	**8**	**65**	**78**	10	244	7	261	39	**11**	15	65	34	142	20	196	600
Total Volume	24	18	175	217	47	1109	27	1183	164	26	53	243	122	627	85	834	2477
% App. Total	11.1	8.3	80.6		4	93.7	2.3		67.5	10.7	21.8		14.6	75.2	10.2		
PHF	.750	.563	.673	.696	.734	.924	.844	.913	.872	.591	.736	.868	.678	.962	.708	.880	.959

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City of Menifee
N/S: Encanto Drive
E/W: McCall Boulevard
Weather: Clear

File Name : 03_MEN_Enc_McC AM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 2



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N/S: Encanto Drive
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File Name : 03_MEN_Enc_McC AM
Site Code : 05122850
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Page No : 3

	Encanto Drive Southbound				McCall Boulevard Westbound				Encanto Drive Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:45 AM				07:30 AM				07:15 AM				07:15 AM				
+0 mins.	4	4	34	42	11	286	6	303	**56**	4	**32**	**92**	16	**164**	16	196	
+15 mins.	**7**	5	51	63	**16**	**300**	**8**	**324**	47	5	18	70	18	160	19	197	
+30 mins.	5	**8**	**65**	**78**	10	279	6	295	43	2	12	57	25	163	16	204	
+45 mins.	6	3	30	39	10	244	7	261	35	**8**	8	51	**45**	162	**30**	**237**	
Total Volume	22	20	180	222	47	1109	27	1183	181	19	70	270	104	649	81	834	
% App. Total	9.9	9	81.1		4	93.7	2.3		67	7	25.9		12.5	77.8	9.7		
PHF	.786	.625	.692	.712	.734	.924	.844	.913	.808	.594	.547	.734	.578	.989	.675	.880	

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Groups Printed- Total Volume

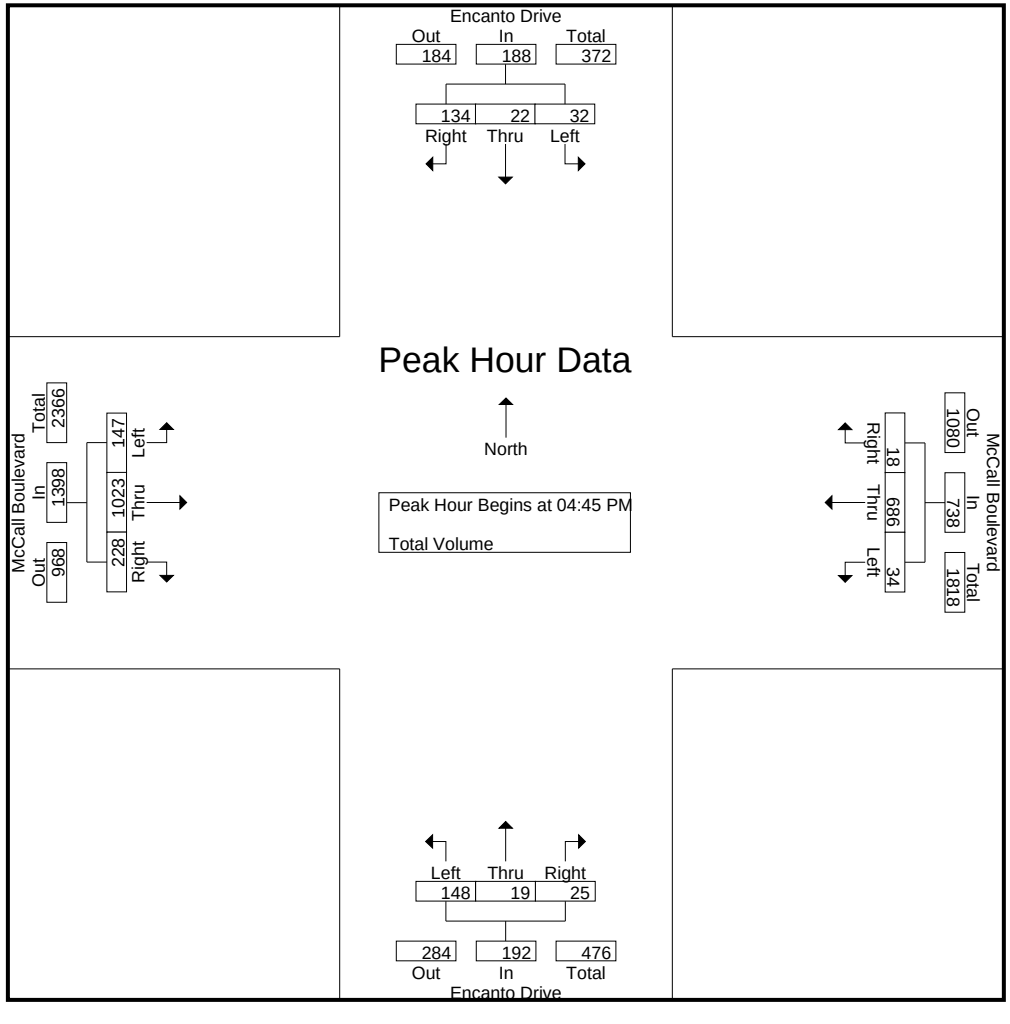
	Encanto Drive Southbound					McCall Boulevard Westbound					Encanto Drive Northbound					McCall Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	8	3	39	27	50	6	152	4	0	162	35	7	6	4	48	40	235	67	3	342	34	602	636
04:15 PM	7	4	36	25	47	10	151	1	0	162	35	6	6	4	47	31	230	47	6	308	35	564	599
04:30 PM	3	7	40	14	50	11	179	5	1	195	32	7	13	5	52	39	260	60	4	359	24	656	680
04:45 PM	7	5	33	13	45	7	159	2	0	168	22	2	5	1	29	31	255	62	13	348	27	590	617
Total	25	19	148	79	192	34	641	12	1	687	124	22	30	14	176	141	980	236	26	1357	120	2412	2532
05:00 PM	7	8	36	12	51	9	154	6	0	169	40	6	6	2	52	41	263	54	7	358	21	630	651
05:15 PM	11	4	34	25	49	11	178	5	0	194	42	5	8	2	55	41	248	51	7	340	34	638	672
05:30 PM	7	5	31	21	43	7	195	5	1	207	44	6	6	4	56	34	257	61	9	352	35	658	693
05:45 PM	9	6	21	12	36	6	125	6	0	137	43	7	8	3	58	23	249	57	2	329	17	560	577
Total	34	23	122	70	179	33	652	22	1	707	169	24	28	11	221	139	1017	223	25	1379	107	2486	2593
Grand Total	59	42	270	149	371	67	1293	34	2	1394	293	46	58	25	397	280	1997	459	51	2736	227	4898	5125
Apprch %	15.9	11.3	72.8			4.8	92.8	2.4			73.8	11.6	14.6			10.2	73	16.8					
Total %	1.2	0.9	5.5		7.6	1.4	26.4	0.7		28.5	6	0.9	1.2		8.1	5.7	40.8	9.4		55.9	4.4	95.6	

	Encanto Drive Southbound				McCall Boulevard Westbound				Encanto Drive Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	7	5	33	45	7	159	2	168	22	2	5	29	31	255	**62**	348	590
05:00 PM	7	**8**	**36**	**51**	9	154	**6**	169	40	**6**	6	52	**41**	**263**	54	**358**	630
05:15 PM	**11**	4	34	49	**11**	178	5	194	42	5	**8**	55	41	248	51	340	638
05:30 PM	7	5	31	43	7	**195**	5	**207**	**44**	6	6	**56**	34	257	61	352	**658**
Total Volume	32	22	134	188	34	686	18	738	148	19	25	192	147	1023	228	1398	2516
% App. Total	17	11.7	71.3		4.6	93	2.4		77.1	9.9	13		10.5	73.2	16.3		
PHF	.727	.688	.931	.922	.773	.879	.750	.891	.841	.792	.781	.857	.896	.972	.919	.976	.956

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	Encanto Drive Southbound				McCall Boulevard Westbound				Encanto Drive Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:30 PM				04:45 PM				05:00 PM				04:30 PM				
+0 mins.	3	7	**40**	50	7	159	2	168	40	6	6	52	39	260	60	**359**	
+15 mins.	7	5	33	45	9	154	**6**	169	42	5	**8**	55	31	255	**62**	348	
+30 mins.	7	**8**	36	**51**	**11**	178	5	194	**44**	6	6	56	**41**	**263**	54	358	
+45 mins.	**11**	4	34	49	7	**195**	5	**207**	43	**7**	8	**58**	41	248	51	340	
Total Volume	28	24	143	195	34	686	18	738	169	24	28	221	152	1026	227	1405	
% App. Total	14.4	12.3	73.3		4.6	93	2.4		76.5	10.9	12.7		10.8	73	16.2		
PHF	.636	.750	.894	.956	.773	.879	.750	.891	.960	.857	.875	.953	.927	.975	.915	.978	

Location: Menifee
N/S: Encanto Drive
E/W: McCall Boulevard

Date: 9/27/2022
Day: Tuesday

PEDESTRIANS

	North Leg Encanto Drive	East Leg McCall Boulevard	South Leg Encanto Drive	West Leg McCall Boulevard	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	1	0	0	1
7:15 AM	1	1	0	0	2
7:30 AM	0	0	0	0	0
7:45 AM	0	1	1	0	2
8:00 AM	1	4	0	0	5
8:15 AM	0	1	0	0	1
8:30 AM	0	1	1	0	2
8:45 AM	0	1	0	0	1
TOTAL VOLUMES:	2	10	2	0	14

	North Leg Encanto Drive	East Leg McCall Boulevard	South Leg Encanto Drive	West Leg McCall Boulevard	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	1	1	0	2
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	1	1	0	2

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PO Box 1178
Corona, CA 92878
951-268-6268

Location: Menifee
N/S: Encanto Drive
E/W: McCall Boulevard

Date: 9/27/2022
Day: Tuesday

BICYCLES

	Southbound Encanto Drive			Westbound McCall Boulevard			Northbound Encanto Drive			Eastbound McCall Boulevard			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	1	0	0	0	0	0	0	0	1	0	2
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	1	0	0	0	0	0	0	0	1	0	2

	Southbound Encanto Drive			Westbound McCall Boulevard			Northbound Encanto Drive			Eastbound McCall Boulevard			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

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City of Menifee
N/S: Sherman Road
E/W: McCall Boulevard
Weather: Clear

File Name : 04_MEN_Sher_McC AM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 1

Groups Printed- Total Volume

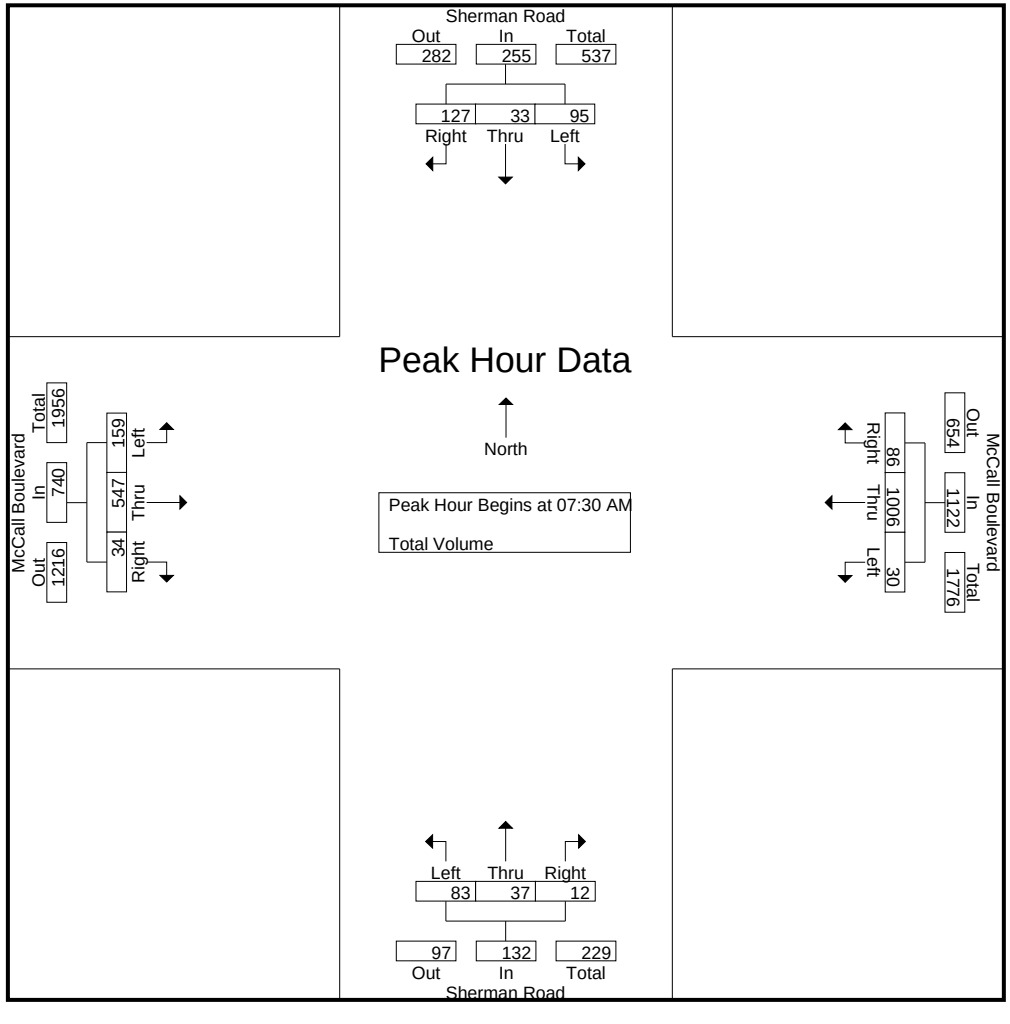
	Sherman Road Southbound					McCall Boulevard Westbound					Sherman Road Northbound					McCall Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	3	2	3	4	189	9	0	202	20	0	2	1	22	9	131	3	1	143	4	370	374
07:15 AM	1	1	5	4	7	2	231	6	0	239	17	0	2	1	19	9	177	2	0	188	5	453	458
07:30 AM	7	2	9	6	18	5	255	21	1	281	32	5	3	0	40	20	168	8	1	196	8	535	543
07:45 AM	11	6	22	12	39	11	303	18	0	332	12	8	3	1	23	34	149	8	0	191	13	585	598
Total	19	9	39	24	67	22	978	54	1	1054	81	13	10	3	104	72	625	21	2	718	30	1943	1973
08:00 AM	39	11	40	17	90	7	268	25	3	300	20	11	3	2	34	46	127	9	1	182	23	606	629
08:15 AM	38	14	56	23	108	7	180	22	2	209	19	13	3	2	35	59	103	9	2	171	29	523	552
08:30 AM	16	7	33	17	56	5	145	21	5	171	21	2	0	0	23	11	113	10	1	134	23	384	407
08:45 AM	5	2	15	14	22	9	139	4	2	152	28	0	0	0	28	11	111	8	2	130	18	332	350
Total	98	34	144	71	276	28	732	72	12	832	88	26	6	4	120	127	454	36	6	617	93	1845	1938
Grand Total	117	43	183	95	343	50	1710	126	13	1886	169	39	16	7	224	199	1079	57	8	1335	123	3788	3911
Apprch %	34.1	12.5	53.4			2.7	90.7	6.7			75.4	17.4	7.1			14.9	80.8	4.3					
Total %	3.1	1.1	4.8		9.1	1.3	45.1	3.3		49.8	4.5	1	0.4		5.9	5.3	28.5	1.5		35.2	3.1	96.9	

	Sherman Road Southbound				McCall Boulevard Westbound				Sherman Road Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	7	2	9	18	5	255	21	281	**32**	5	**3**	**40**	20	**168**	8	**196**	535
07:45 AM	11	6	22	39	**11**	**303**	18	**332**	12	8	3	23	34	149	8	191	585
08:00 AM	**39**	11	40	90	7	268	**25**	300	20	11	3	34	46	127	**9**	182	**606**
08:15 AM	38	**14**	**56**	**108**	7	180	22	209	19	**13**	3	35	**59**	103	9	171	523
Total Volume	95	33	127	255	30	1006	86	1122	83	37	12	132	159	547	34	740	2249
% App. Total	37.3	12.9	49.8		2.7	89.7	7.7		62.9	28	9.1		21.5	73.9	4.6		
PHF	.609	.589	.567	.590	.682	.830	.860	.845	.648	.712	1.00	.825	.674	.814	.944	.944	.928

Counts Unlimited, Inc.
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City of Menifee
N/S: Sherman Road
E/W: McCall Boulevard
Weather: Clear

File Name : 04_MEN_Sher_McC AM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 2



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City of Menifee
N/S: Sherman Road
E/W: McCall Boulevard
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File Name : 04_MEN_Sher_McC AM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 3

	Sherman Road Southbound				McCall Boulevard Westbound				Sherman Road Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:45 AM				07:15 AM				07:30 AM				07:15 AM				
+0 mins.	11	6	22	39	2	231	6	239	**32**	5	**3**	**40**	9	**177**	2	188	
+15 mins.	**39**	11	40	90	5	255	21	281	12	8	3	23	20	168	8	**196**	
+30 mins.	38	**14**	**56**	**108**	**11**	**303**	18	**332**	20	11	3	34	34	149	8	191	
+45 mins.	16	7	33	56	7	268	**25**	300	19	**13**	3	35	**46**	127	**9**	182	
Total Volume	104	38	151	293	25	1057	70	1152	83	37	12	132	109	621	27	757	
% App. Total	35.5	13	51.5		2.2	91.8	6.1		62.9	28	9.1		14.4	82	3.6		
PHF	.667	.679	.674	.678	.568	.872	.700	.867	.648	.712	1.000	.825	.592	.877	.750	.966	

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City of Menifee
N/S: Sherman Road
E/W: McCall Boulevard
Weather: Clear

File Name : 04_MEN_Sher_McC PM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 1

Groups Printed- Total Volume

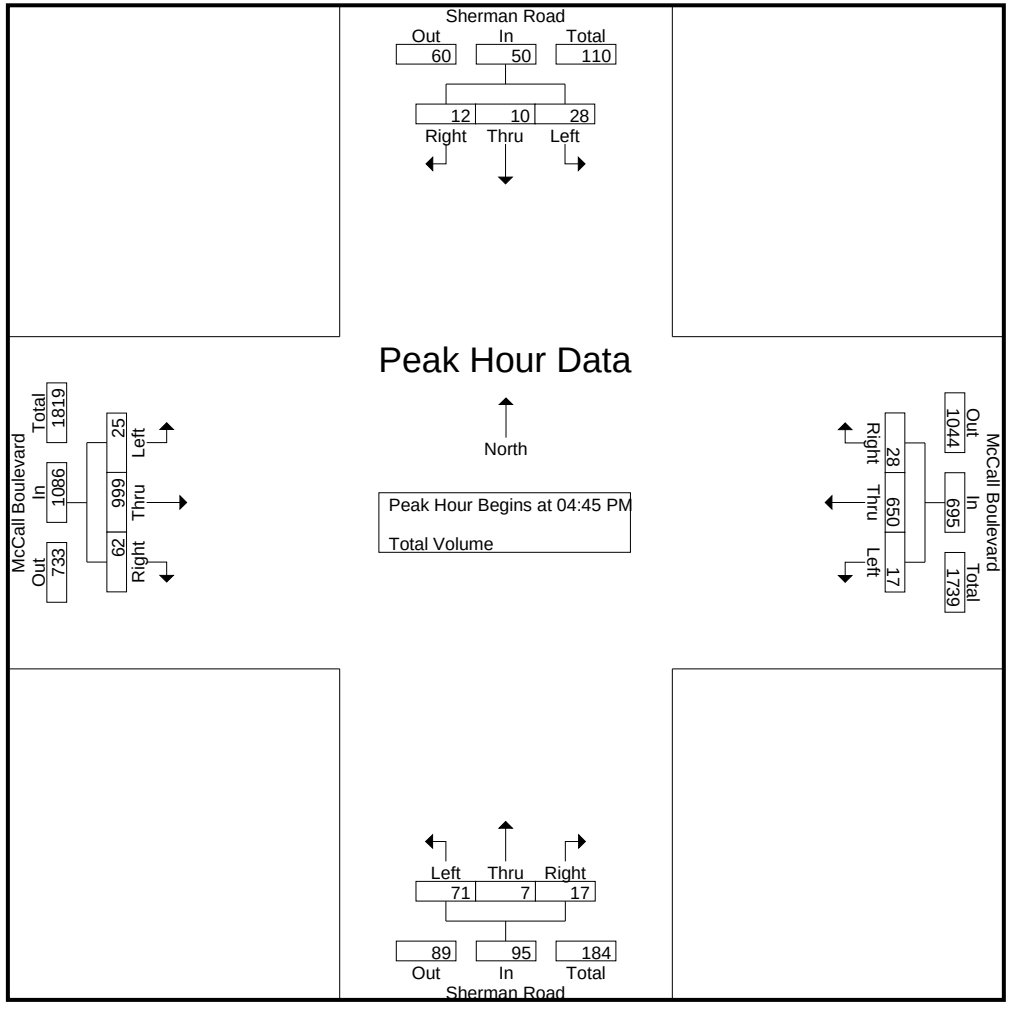
	Sherman Road Southbound					McCall Boulevard Westbound					Sherman Road Northbound					McCall Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	6	2	11	11	19	10	133	5	1	148	18	4	0	0	22	7	223	19	2	249	14	438	452
04:15 PM	4	2	3	2	9	6	132	4	0	142	19	2	4	2	25	3	213	13	0	229	4	405	409
04:30 PM	11	1	6	4	18	6	175	1	0	182	22	3	1	1	26	4	260	21	4	285	9	511	520
04:45 PM	3	4	2	2	9	5	147	1	0	153	12	1	3	3	16	3	255	12	0	270	5	448	453
Total	24	9	22	19	55	27	587	11	1	625	71	10	8	6	89	17	951	65	6	1033	32	1802	1834
05:00 PM	4	3	4	3	11	4	154	6	0	164	13	4	8	4	25	4	252	15	3	271	10	471	481
05:15 PM	12	2	3	3	17	4	159	9	0	172	27	0	4	1	31	11	234	22	2	267	6	487	493
05:30 PM	9	1	3	3	13	4	190	12	2	206	19	2	2	2	23	7	258	13	1	278	8	520	528
05:45 PM	6	2	5	5	13	4	120	3	0	127	12	0	6	5	18	4	223	17	7	244	17	402	419
Total	31	8	15	14	54	16	623	30	2	669	71	6	20	12	97	26	967	67	13	1060	41	1880	1921
Grand Total	55	17	37	33	109	43	1210	41	3	1294	142	16	28	18	186	43	1918	132	19	2093	73	3682	3755
Apprch %	50.5	15.6	33.9			3.3	93.5	3.2			76.3	8.6	15.1			2.1	91.6	6.3					
Total %	1.5	0.5	1		3	1.2	32.9	1.1		35.1	3.9	0.4	0.8		5.1	1.2	52.1	3.6		56.8	1.9	98.1	

	Sherman Road Southbound				McCall Boulevard Westbound				Sherman Road Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	3	**4**	2	9	**5**	147	1	153	12	1	3	16	3	255	12	270	448
05:00 PM	4	3	**4**	11	4	154	6	164	13	**4**	**8**	25	4	252	15	271	471
05:15 PM	**12**	2	3	**17**	4	159	9	172	**27**	0	4	**31**	**11**	234	**22**	267	487
05:30 PM	9	1	3	13	4	**190**	**12**	**206**	19	2	2	23	7	**258**	13	**278**	**520**
Total Volume	28	10	12	50	17	650	28	695	71	7	17	95	25	999	62	1086	1926
% App. Total	56	20	24		2.4	93.5	4		74.7	7.4	17.9		2.3	92	5.7		
PHF	.583	.625	.750	.735	.850	.855	.583	.843	.657	.438	.531	.766	.568	.968	.705	.977	.926

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City of Menifee
N/S: Sherman Road
E/W: McCall Boulevard
Weather: Clear

File Name : 04_MEN_Sher_McC PM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 2



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City of Menifee
N/S: Sherman Road
E/W: McCall Boulevard
Weather: Clear

File Name : 04_MEN_Sher_McC PM
Site Code : 05122850
Start Date : 9/27/2022

	Sherman Road Southbound				McCall Boulevard Westbound				Sherman Road Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:00 PM				04:45 PM				04:30 PM				04:30 PM				
+0 mins.	6	2	**11**	**19**	**5**	147	1	153	22	3	1	26	4	**260**	21	**285**	
+15 mins.	4	2	3	9	4	154	6	164	12	1	3	16	3	255	12	270	
+30 mins.	**11**	1	6	18	4	159	9	172	13	**4**	**8**	25	4	252	15	271	
+45 mins.	3	**4**	2	9	4	**190**	**12**	**206**	**27**	0	4	**31**	**11**	234	**22**	267	
Total Volume	24	9	22	55	17	650	28	695	74	8	16	98	22	1001	70	1093	
% App. Total	43.6	16.4	40		2.4	93.5	4		75.5	8.2	16.3		2	91.6	6.4		
PHF	.545	.563	.500	.724	.850	.855	.583	.843	.685	.500	.500	.790	.500	.963	.795	.959	

Location: Menifee
N/S: Sherman Road
E/W: McCall Boulevard

Date: 9/27/2022
Day: Tuesday

PEDESTRIANS

	North Leg Sherman Road	East Leg McCall Boulevard	South Leg Sherman Road	West Leg McCall Boulevard	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	1	1
7:30 AM	0	0	0	0	0
7:45 AM	0	1	0	0	1
8:00 AM	0	8	0	1	9
8:15 AM	0	4	0	0	4
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	13	0	2	15

	North Leg Sherman Road	East Leg McCall Boulevard	South Leg Sherman Road	West Leg McCall Boulevard	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

Location: Menifee
N/S: Sherman Road
E/W: McCall Boulevard

Date: 9/27/2022
Day: Tuesday

BICYCLES

	Southbound Sherman Road			Westbound McCall Boulevard			Northbound Sherman Road			Eastbound McCall Boulevard			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	1	1	0	0	0	0	2
8:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	1	2	0	0	0	0	3

	Southbound Sherman Road			Westbound McCall Boulevard			Northbound Sherman Road			Eastbound McCall Boulevard			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

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City of Menifee
N/S: Via Entrada/Hillpointe Drive
E/W: McCall Boulevard
Weather: Clear

File Name : 05_MEN_Via En_McC AM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 1

Groups Printed- Total Volume

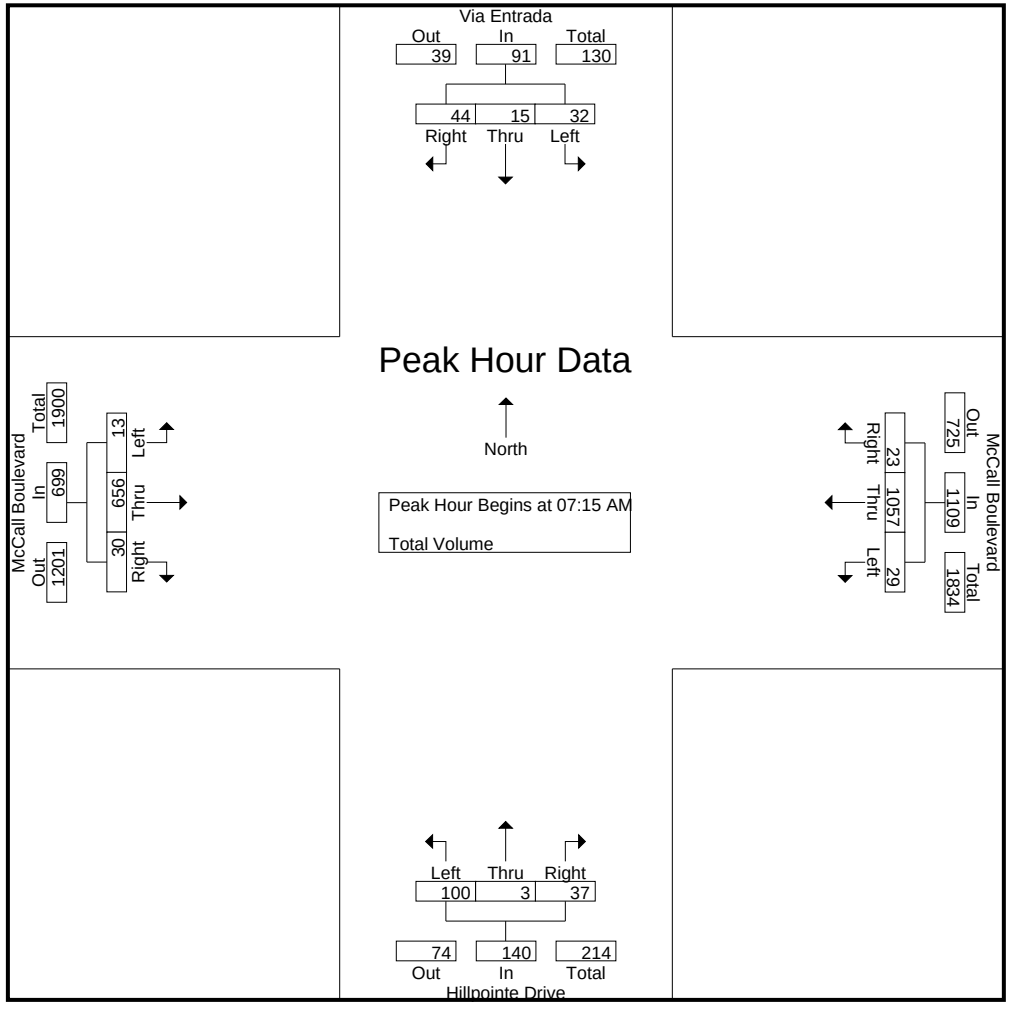
	Via Entrada Southbound					McCall Boulevard Westbound					Hillpointe Drive Northbound					McCall Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	4	1	10	4	15	3	182	1	0	186	17	0	4	3	21	3	126	3	0	132	7	354	361
07:15 AM	17	3	11	9	31	1	213	1	0	215	27	0	12	7	39	4	176	6	0	186	16	471	487
07:30 AM	7	7	14	9	28	6	255	3	0	264	23	1	13	4	37	2	180	3	0	185	13	514	527
07:45 AM	6	2	11	5	19	14	305	11	4	330	26	1	9	5	36	5	150	11	3	166	17	551	568
Total	34	13	46	27	93	24	955	16	4	995	93	2	38	19	133	14	632	23	3	669	53	1890	1943
08:00 AM	2	3	8	4	13	8	284	8	1	300	24	1	3	2	28	2	150	10	1	162	8	503	511
08:15 AM	2	1	6	5	9	7	173	4	0	184	23	6	6	4	35	3	137	12	0	152	9	380	389
08:30 AM	3	1	3	1	7	3	167	0	0	170	16	1	0	0	17	15	113	13	1	141	2	335	337
08:45 AM	1	3	8	3	12	1	131	2	0	134	18	3	7	5	28	11	89	20	1	120	9	294	303
Total	8	8	25	13	41	19	755	14	1	788	81	11	16	11	108	31	489	55	3	575	28	1512	1540
Grand Total	42	21	71	40	134	43	1710	30	5	1783	174	13	54	30	241	45	1121	78	6	1244	81	3402	3483
Apprch %	31.3	15.7	53			2.4	95.9	1.7			72.2	5.4	22.4			3.6	90.1	6.3					
Total %	1.2	0.6	2.1		3.9	1.3	50.3	0.9		52.4	5.1	0.4	1.6		7.1	1.3	33	2.3		36.6	2.3	97.7	

	Via Entrada Southbound				McCall Boulevard Westbound				Hillpointe Drive Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	**17**	3	11	**31**	1	213	1	215	**27**	0	12	**39**	4	176	6	**186**	471
07:30 AM	7	**7**	**14**	28	6	255	3	264	23	**1**	**13**	37	2	**180**	3	185	514
07:45 AM	6	2	11	19	**14**	**305**	**11**	**330**	26	1	9	36	**5**	150	**11**	166	**551**
08:00 AM	2	3	8	13	8	284	8	300	24	1	3	28	2	150	10	162	503
Total Volume	32	15	44	91	29	1057	23	1109	100	3	37	140	13	656	30	699	2039
% App. Total	35.2	16.5	48.4		2.6	95.3	2.1		71.4	2.1	26.4		1.9	93.8	4.3		
PHF	.471	.536	.786	.734	.518	.866	.523	.840	.926	.750	.712	.897	.650	.911	.682	.940	.925

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City of Menifee
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E/W: McCall Boulevard
Weather: Clear

File Name : 05_MEN_Via En_McC AM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 2



Counts Unlimited, Inc.
PO Box 1178
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(951)268-6268

City of Menifee
N/S: Via Entrada/Hillpointe Drive
E/W: McCall Boulevard
Weather: Clear

File Name : 05_MEN_Via En_McC AM
Site Code : 05122850
Start Date : 9/27/2022

	Via Entrada Southbound				McCall Boulevard Westbound				Hillpointe Drive Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:15 AM				07:15 AM				07:15 AM				
+0 mins.	4	1	10	15	1	213	1	215	**27**	0	12	**39**	4	176	6	**186**	
+15 mins.	**17**	3	11	**31**	6	255	3	264	23	**1**	**13**	37	2	**180**	3	185	
+30 mins.	7	**7**	**14**	28	**14**	**305**	**11**	**330**	26	1	9	36	**5**	150	**11**	166	
+45 mins.	6	2	11	19	8	284	8	300	24	1	3	28	2	150	10	162	
Total Volume	34	13	46	93	29	1057	23	1109	100	3	37	140	13	656	30	699	
% App. Total	36.6	14	49.5		2.6	95.3	2.1		71.4	2.1	26.4		1.9	93.8	4.3		
PHF	.500	.464	.821	.750	.518	.866	.523	.840	.926	.750	.712	.897	.650	.911	.682	.940	

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City of Menifee
N/S: Via Entrada/Hillpointe Drive
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Weather: Clear

File Name : 05_MEN_Via En_McC PM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 1

Groups Printed- Total Volume

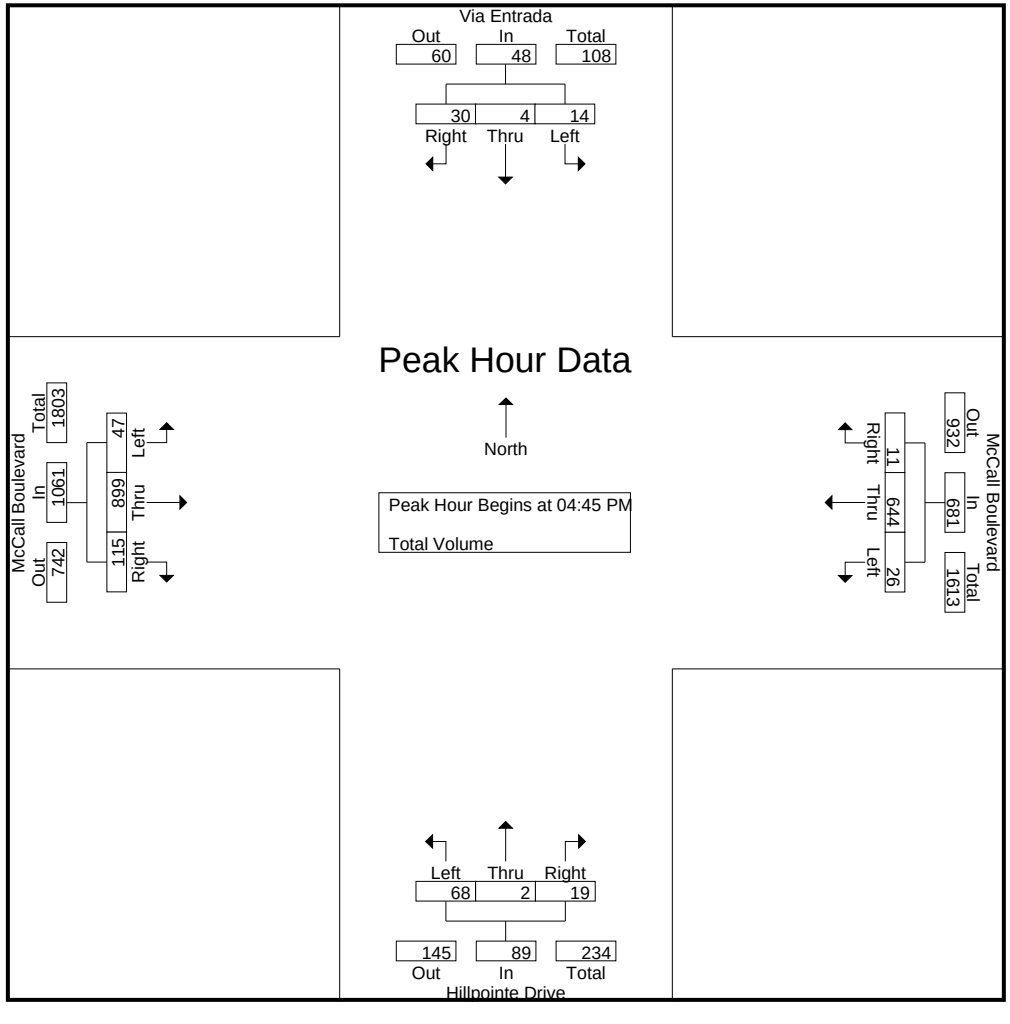
	Via Entrada Southbound					McCall Boulevard Westbound					Hillpointe Drive Northbound					McCall Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	2	1	8	8	11	7	139	4	0	150	12	4	6	4	22	16	192	27	1	235	13	418	431
04:15 PM	1	0	4	3	5	4	126	2	0	132	15	1	5	4	21	9	210	22	1	241	8	399	407
04:30 PM	0	0	12	8	12	6	162	2	0	170	19	2	5	4	26	10	237	23	3	270	15	478	493
04:45 PM	3	2	6	4	11	7	142	7	1	156	16	0	2	1	18	10	226	24	1	260	7	445	452
Total	6	3	30	23	39	24	569	15	1	608	62	7	18	13	87	45	865	96	6	1006	43	1740	1783
05:00 PM	4	0	5	4	9	7	155	1	0	163	19	1	7	4	27	12	223	31	3	266	11	465	476
05:15 PM	4	1	12	10	17	7	167	1	0	175	18	1	4	2	23	11	220	32	2	263	14	478	492
05:30 PM	3	1	7	6	11	5	180	2	0	187	15	0	6	1	21	14	230	28	4	272	11	491	502
05:45 PM	1	1	4	3	6	4	119	4	0	127	10	1	7	7	18	18	209	24	2	251	12	402	414
Total	12	3	28	23	43	23	621	8	0	652	62	3	24	14	89	55	882	115	11	1052	48	1836	1884
Grand Total	18	6	58	46	82	47	1190	23	1	1260	124	10	42	27	176	100	1747	211	17	2058	91	3576	3667
Apprch %	22	7.3	70.7			3.7	94.4	1.8			70.5	5.7	23.9			4.9	84.9	10.3					
Total %	0.5	0.2	1.6		2.3	1.3	33.3	0.6		35.2	3.5	0.3	1.2		4.9	2.8	48.9	5.9		57.6	2.5	97.5	

	Via Entrada Southbound				McCall Boulevard Westbound				Hillpointe Drive Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	3	**2**	6	11	**7**	142	**7**	156	16	0	2	18	10	226	24	260	445
05:00 PM	**4**	0	5	9	7	155	1	163	**19**	**1**	**7**	**27**	12	223	31	266	465
05:15 PM	4	1	**12**	**17**	7	167	1	175	18	1	4	23	11	220	**32**	263	478
05:30 PM	3	1	7	11	5	**180**	2	**187**	15	0	6	21	**14**	**230**	28	**272**	**491**
Total Volume	14	4	30	48	26	644	11	681	68	2	19	89	47	899	115	1061	1879
% App. Total	29.2	8.3	62.5		3.8	94.6	1.6		76.4	2.2	21.3		4.4	84.7	10.8		
PHF	.875	.500	.625	.706	.929	.894	.393	.910	.895	.500	.679	.824	.839	.977	.898	.975	.957

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City of Menifee
N/S: Via Entrada/Hillpointe Drive
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Weather: Clear

File Name : 05_MEN_Via En_McC PM
Site Code : 05122850
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City of Menifee
N/S: Via Entrada/Hillpointe Drive
E/W: McCall Boulevard
Weather: Clear

File Name : 05_MEN_Via En_McC PM
Site Code : 05122850
Start Date : 9/27/2022

	Via Entrada Southbound				McCall Boulevard Westbound				Hillpointe Drive Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:30 PM				04:45 PM				04:30 PM				04:45 PM				
+0 mins.	0	0	**12**	12	**7**	142	**7**	156	**19**	**2**	5	26	10	226	24	260	
+15 mins.	3	**2**	6	11	7	155	1	163	16	0	2	18	12	223	31	266	
+30 mins.	**4**	0	5	9	7	167	1	175	19	1	**7**	**27**	11	220	**32**	263	
+45 mins.	4	1	12	**17**	5	**180**	2	**187**	18	1	4	23	**14**	**230**	28	**272**	
Total Volume	11	3	35	49	26	644	11	681	72	4	18	94	47	899	115	1061	
% App. Total	22.4	6.1	71.4		3.8	94.6	1.6		76.6	4.3	19.1		4.4	84.7	10.8		
PHF	.688	.375	.729	.721	.929	.894	.393	.910	.947	.500	.643	.870	.839	.977	.898	.975	

Location: Menifee
N/S: Via Entrada/Hillpointe Dr
E/W: McCall Boulevard

Date: 9/27/2022
Day: Tuesday

PEDESTRIANS

	North Leg Via Entrada	East Leg McCall Boulevard	South Leg Hillpointe Drive	West Leg McCall Boulevard	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	1	0	1
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	1	1
7:45 AM	0	0	0	1	1
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	2	2
TOTAL VOLUMES:	0	0	1	4	5

	North Leg Via Entrada	East Leg McCall Boulevard	South Leg Hillpointe Drive	West Leg McCall Boulevard	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	1	1
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	1	1	2
TOTAL VOLUMES:	0	0	1	2	3

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Location: Menifee
N/S: Via Entrada/Hillpointe Dr
E/W: McCall Boulevard

Date: 9/27/2022
Day: Tuesday

BICYCLES

	Southbound Via Entrada			Westbound McCall Boulevard			Northbound Hillpointe Drive			Eastbound McCall Boulevard			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	1	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	1	0	0	0	0	0	1

	Southbound Via Entrada			Westbound McCall Boulevard			Northbound Hillpointe Drive			Eastbound McCall Boulevard			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
4:45 PM	0	1	0	0	0	0	1	0	0	0	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	1	0	0	0	0	1	1	0	0	0	1	4

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City of Menifee
N/S: Antelope Road
E/W: McCall Boulevard
Weather: Clear

File Name : 06_MEN_Ant_McC AM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 1

Groups Printed- Total Volume

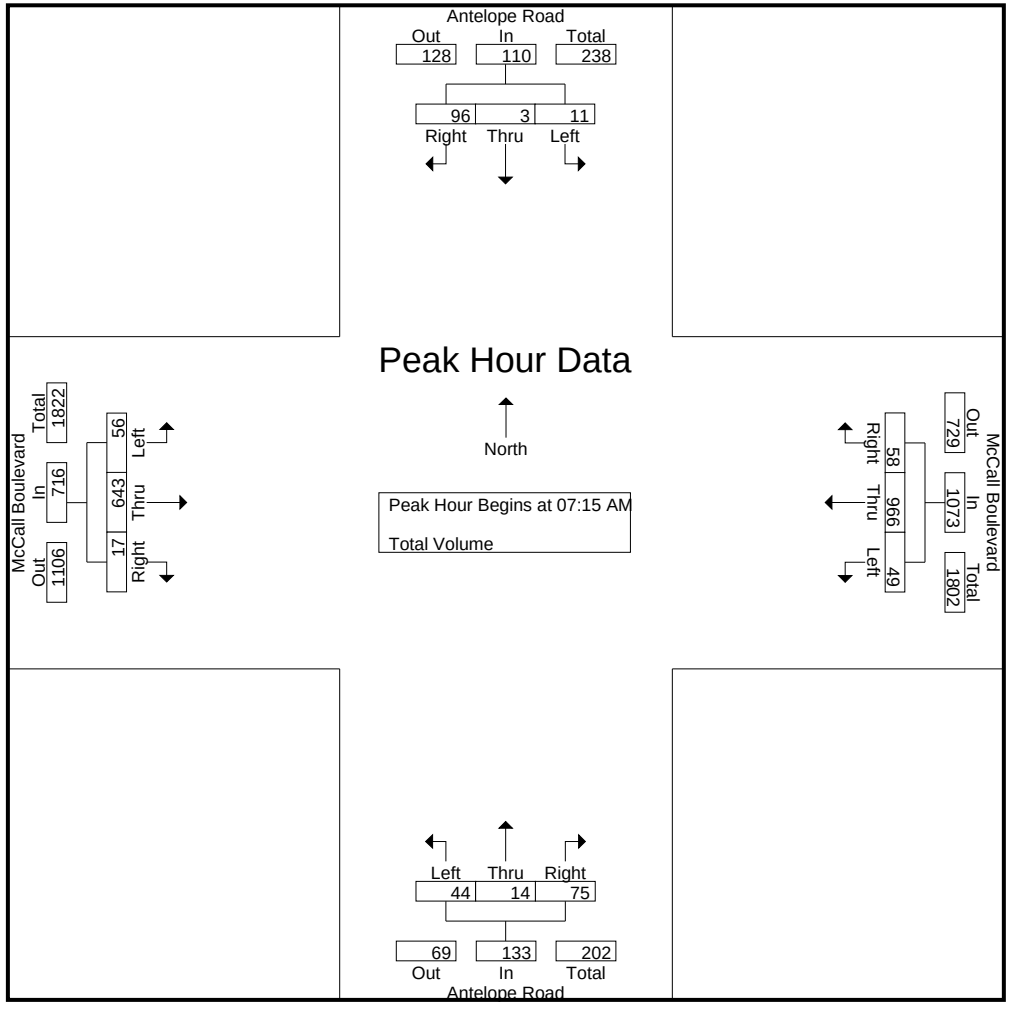
	Antelope Road Southbound					McCall Boulevard Westbound					Antelope Road Northbound					McCall Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	1	0	16	10	17	3	144	0	0	147	16	2	12	5	30	13	112	4	1	129	16	323	339
07:15 AM	2	0	21	9	23	6	184	0	0	190	14	1	34	14	49	12	182	3	0	197	23	459	482
07:30 AM	5	0	19	10	24	18	255	4	0	277	8	4	18	7	30	10	197	4	0	211	17	542	559
07:45 AM	3	2	29	18	34	18	258	51	3	327	14	7	15	5	36	20	137	6	1	163	27	560	587
Total	11	2	85	47	98	45	841	55	3	941	52	14	79	31	145	55	628	17	2	700	83	1884	1967
08:00 AM	1	1	27	18	29	7	269	3	0	279	8	2	8	7	18	14	127	4	1	145	26	471	497
08:15 AM	3	2	19	12	24	10	173	2	0	185	15	1	7	6	23	18	138	4	1	160	19	392	411
08:30 AM	0	0	18	15	18	10	140	2	0	152	3	0	4	2	7	10	101	3	1	114	18	291	309
08:45 AM	1	0	14	13	15	1	115	2	0	118	4	2	2	1	8	10	85	2	1	97	15	238	253
Total	5	3	78	58	86	28	697	9	0	734	30	5	21	16	56	52	451	13	4	516	78	1392	1470
Grand Total	16	5	163	105	184	73	1538	64	3	1675	82	19	100	47	201	107	1079	30	6	1216	161	3276	3437
Apprch %	8.7	2.7	88.6			4.4	91.8	3.8			40.8	9.5	49.8			8.8	88.7	2.5					
Total %	0.5	0.2	5		5.6	2.2	46.9	2		51.1	2.5	0.6	3.1		6.1	3.3	32.9	0.9		37.1	4.7	95.3	

	Antelope Road Southbound				McCall Boulevard Westbound				Antelope Road Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	2	0	21	23	6	184	0	190	**14**	1	**34**	**49**	12	182	3	197	459
07:30 AM	**5**	0	19	24	**18**	255	4	277	8	4	18	30	10	**197**	4	**211**	542
07:45 AM	3	**2**	**29**	**34**	18	258	**51**	**327**	14	**7**	15	36	**20**	137	**6**	163	**560**
08:00 AM	1	1	27	29	7	**269**	3	279	8	2	8	18	14	127	4	145	471
Total Volume	11	3	96	110	49	966	58	1073	44	14	75	133	56	643	17	716	2032
% App. Total	10	2.7	87.3		4.6	90	5.4		33.1	10.5	56.4		7.8	89.8	2.4		
PHF	.550	.375	.828	.809	.681	.898	.284	.820	.786	.500	.551	.679	.700	.816	.708	.848	.907

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File Name : 06_MEN_Ant_McC AM
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	Antelope Road Southbound				McCall Boulevard Westbound				Antelope Road Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:30 AM				07:15 AM				07:00 AM				07:15 AM				
+0 mins.	**5**	0	19	24	6	184	0	190	**16**	2	12	30	12	182	3	197	
+15 mins.	3	**2**	**29**	**34**	**18**	255	4	277	14	1	**34**	**49**	10	**197**	4	**211**	
+30 mins.	1	1	27	29	18	258	**51**	**327**	8	4	18	30	**20**	137	**6**	163	
+45 mins.	3	2	19	24	7	**269**	3	279	14	**7**	15	36	14	127	4	145	
Total Volume	12	5	94	111	49	966	58	1073	52	14	79	145	56	643	17	716	
% App. Total	10.8	4.5	84.7		4.6	90	5.4		35.9	9.7	54.5		7.8	89.8	2.4		
PHF	.600	.625	.810	.816	.681	.898	.284	.820	.813	.500	.581	.740	.700	.816	.708	.848	

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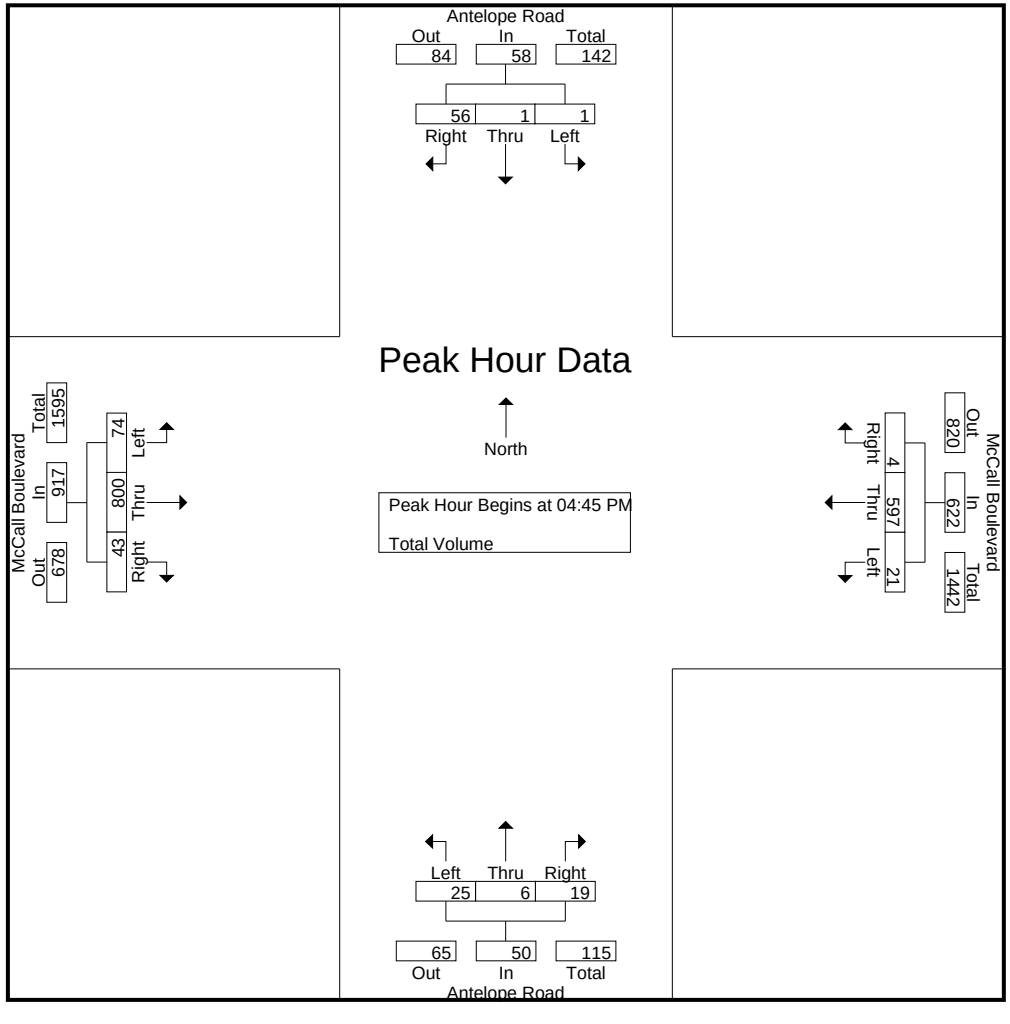
	Antelope Road Southbound					McCall Boulevard Westbound					Antelope Road Northbound					McCall Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	2	3	15	10	20	5	125	1	0	131	6	0	4	4	10	21	162	11	0	194	14	355	369
04:15 PM	1	0	10	9	11	4	112	2	0	118	8	1	4	3	13	15	198	14	0	227	12	369	381
04:30 PM	1	1	11	9	13	4	151	0	0	155	14	1	7	5	22	23	209	10	2	242	16	432	448
04:45 PM	0	0	20	13	20	5	126	0	0	131	5	0	4	2	9	11	199	13	1	223	16	383	399
Total	4	4	56	41	64	18	514	3	0	535	33	2	19	14	54	70	768	48	3	886	58	1539	1597
05:00 PM	0	0	8	8	8	3	151	1	0	155	7	3	6	6	16	22	208	12	0	242	14	421	435
05:15 PM	1	1	15	11	17	3	147	2	0	152	7	1	7	3	15	23	174	10	2	207	16	391	407
05:30 PM	0	0	13	12	13	10	173	1	0	184	6	2	2	2	10	18	219	8	0	245	14	452	466
05:45 PM	2	3	7	6	12	5	113	0	0	118	4	2	6	6	12	21	193	8	0	222	12	364	376
Total	3	4	43	37	50	21	584	4	0	609	24	8	21	17	53	84	794	38	2	916	56	1628	1684
Grand Total	7	8	99	78	114	39	1098	7	0	1144	57	10	40	31	107	154	1562	86	5	1802	114	3167	3281
Apprch %	6.1	7	86.8			3.4	96	0.6			53.3	9.3	37.4			8.5	86.7	4.8					
Total %	0.2	0.3	3.1		3.6	1.2	34.7	0.2		36.1	1.8	0.3	1.3		3.4	4.9	49.3	2.7		56.9	3.5	96.5	

	Antelope Road Southbound				McCall Boulevard Westbound				Antelope Road Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	**20**	**20**	5	126	0	131	5	0	4	9	11	199	**13**	223	383
05:00 PM	0	0	8	8	3	151	1	155	**7**	**3**	6	**16**	22	208	12	242	421
05:15 PM	**1**	**1**	15	17	3	147	**2**	152	7	1	**7**	15	**23**	174	10	207	391
05:30 PM	0	0	13	13	**10**	**173**	1	**184**	6	2	2	10	18	**219**	8	**245**	**452**
Total Volume	1	1	56	58	21	597	4	622	25	6	19	50	74	800	43	917	1647
% App. Total	1.7	1.7	96.6		3.4	96	0.6		50	12	38		8.1	87.2	4.7		
PHF	.250	.250	.700	.725	.525	.863	.500	.845	.893	.500	.679	.781	.804	.913	.827	.936	.911

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Start Date : 9/27/2022

	Antelope Road Southbound				McCall Boulevard Westbound				Antelope Road Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:00 PM				04:45 PM				04:30 PM				04:15 PM				
+0 mins.	**2**	**3**	15	**20**	5	126	0	131	**14**	1	**7**	**22**	15	198	**14**	227	
+15 mins.	1	0	10	11	3	151	1	155	5	0	4	9	**23**	**209**	10	**242**	
+30 mins.	1	1	11	13	3	147	**2**	152	7	**3**	6	16	11	199	13	223	
+45 mins.	0	0	**20**	20	**10**	**173**	1	**184**	7	1	7	15	22	208	12	242	
Total Volume	4	4	56	64	21	597	4	622	33	5	24	62	71	814	49	934	
% App. Total	6.2	6.2	87.5		3.4	96	0.6		53.2	8.1	38.7		7.6	87.2	5.2		
PHF	.500	.333	.700	.800	.525	.863	.500	.845	.589	.417	.857	.705	.772	.974	.875	.965	

Location: Menifee
N/S: Antelope Road
E/W: McCall Boulevard

Date: 9/27/2022
Day: Tuesday

PEDESTRIANS

	North Leg Antelope Road	East Leg McCall Boulevard	South Leg Antelope Road	West Leg McCall Boulevard	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	1	1	1	0	3
7:30 AM	0	2	0	0	2
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	1	0	0	1
TOTAL VOLUMES:	1	4	1	0	6

	North Leg Antelope Road	East Leg McCall Boulevard	South Leg Antelope Road	West Leg McCall Boulevard	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	1	0	0	0	1
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	1	0	0	0	1

Location: Menifee
N/S: Antelope Road
E/W: McCall Boulevard

Date: 9/27/2022
Day: Tuesday

BICYCLES

	Southbound Antelope Road			Westbound McCall Boulevard			Northbound Antelope Road			Eastbound McCall Boulevard			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	1	0	0	0	0	0	0	0	0	0	0	0	1
TOTAL VOLUMES:	1	0	0	0	0	0	0	1	0	0	0	1	3

	Southbound Antelope Road			Westbound McCall Boulevard			Northbound Antelope Road			Eastbound McCall Boulevard			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	1	0	0	0	0	1

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City of Menifee
N/S: Oakhurst Avenue
E/W: McCall Boulevard
Weather: Clear

File Name : 07_MEN_Oak_McC AM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 1

Groups Printed- Total Volume

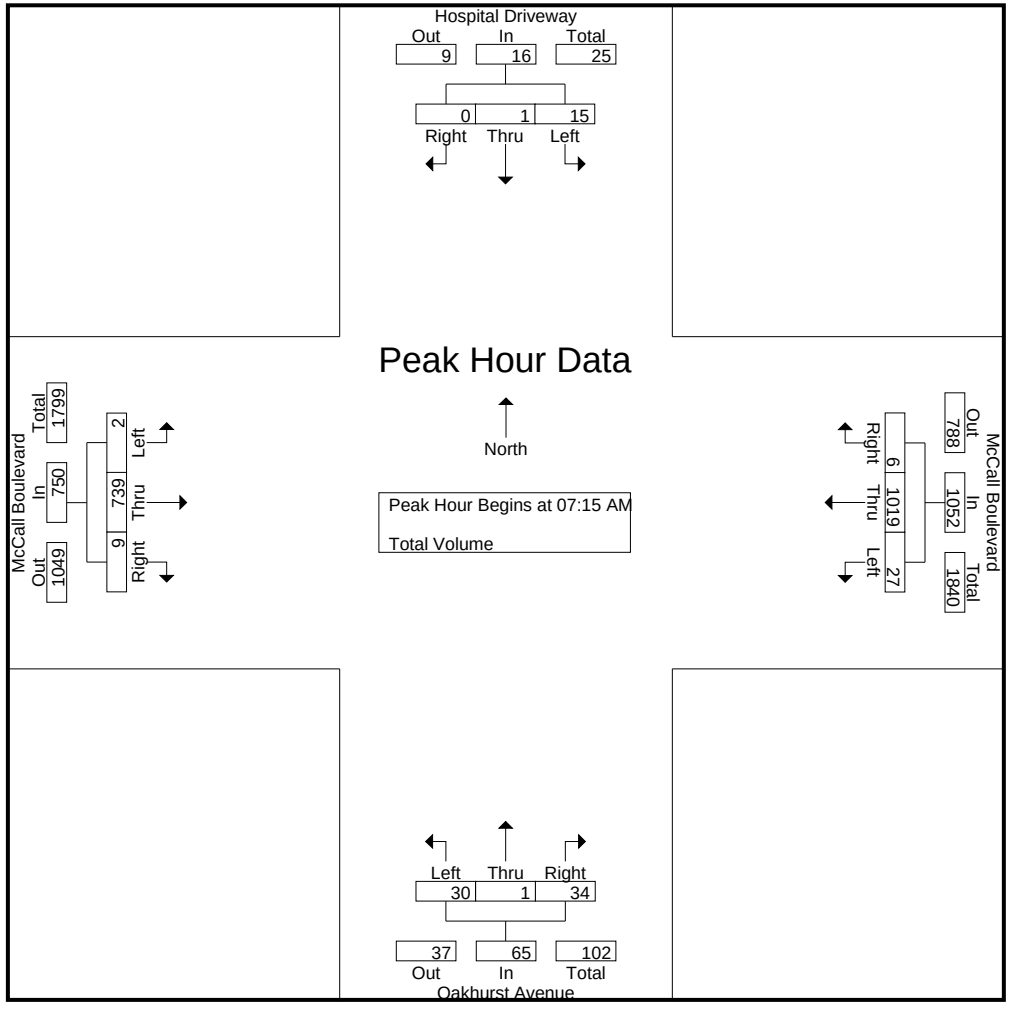
	Hospital Driveway Southbound					McCall Boulevard Westbound					Oakhurst Avenue Northbound					McCall Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	1	0	0	1	1	159	5	0	165	13	0	0	0	13	2	107	5	0	114	0	293	293
07:15 AM	4	0	0	0	4	2	166	1	0	169	8	0	6	2	14	0	213	0	0	213	2	400	402
07:30 AM	7	0	0	0	7	5	262	1	0	268	9	0	16	8	25	0	229	3	0	232	8	532	540
07:45 AM	1	0	0	0	1	14	308	3	0	325	10	0	8	5	18	2	162	1	0	165	5	509	514
Total	12	1	0	0	13	22	895	10	0	927	40	0	30	15	70	4	711	9	0	724	15	1734	1749
08:00 AM	3	1	0	0	4	6	283	1	0	290	3	1	4	3	8	0	135	5	0	140	3	442	445
08:15 AM	0	0	1	0	1	8	170	2	0	180	11	0	3	3	14	1	146	7	0	154	3	349	352
08:30 AM	1	0	1	1	2	4	146	2	0	152	4	0	4	4	8	1	92	5	1	98	6	260	266
08:45 AM	0	0	1	0	1	5	113	1	0	119	1	0	0	0	1	1	82	2	0	85	0	206	206
Total	4	1	3	1	8	23	712	6	0	741	19	1	11	10	31	3	455	19	1	477	12	1257	1269
Grand Total	16	2	3	1	21	45	1607	16	0	1668	59	1	41	25	101	7	1166	28	1	1201	27	2991	3018
Apprch %	76.2	9.5	14.3			2.7	96.3	1			58.4	1	40.6			0.6	97.1	2.3					
Total %	0.5	0.1	0.1		0.7	1.5	53.7	0.5		55.8	2	0	1.4		3.4	0.2	39	0.9		40.2	0.9	99.1	

	Hospital Driveway Southbound				McCall Boulevard Westbound				Oakhurst Avenue Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	4	0	0	4	2	166	1	169	8	0	6	14	0	213	0	213	400
07:30 AM	**7**	0	0	**7**	5	262	1	268	9	0	**16**	**25**	0	**229**	3	**232**	**532**
07:45 AM	1	0	0	1	**14**	**308**	**3**	**325**	**10**	0	8	18	**2**	162	1	165	509
08:00 AM	3	**1**	0	4	6	283	1	290	3	**1**	4	8	0	135	**5**	140	442
Total Volume	15	1	0	16	27	1019	6	1052	30	1	34	65	2	739	9	750	1883
% App. Total	93.8	6.2	0		2.6	96.9	0.6		46.2	1.5	52.3		0.3	98.5	1.2		
PHF	.536	.250	.000	.571	.482	.827	.500	.809	.750	.250	.531	.650	.250	.807	.450	.808	.885

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City of Menifee
N/S: Oakhurst Avenue
E/W: McCall Boulevard
Weather: Clear

File Name : 07_MEN_Oak_McC AM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 2



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City of Menifee
N/S: Oakhurst Avenue
E/W: McCall Boulevard
Weather: Clear

File Name : 07_MEN_Oak_McC AM
Site Code : 05122850
Start Date : 9/27/2022

	Hospital Driveway Southbound				McCall Boulevard Westbound				Oakhurst Avenue Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:15 AM				07:30 AM				07:00 AM				07:15 AM				
+0 mins.	4	0	0	4	5	262	1	268	**13**	0	0	13	0	213	0	213	
+15 mins.	**7**	0	0	**7**	**14**	**308**	**3**	**325**	8	0	6	14	0	**229**	3	**232**	
+30 mins.	1	0	0	1	6	283	1	290	9	0	**16**	**25**	**2**	162	1	165	
+45 mins.	3	**1**	0	4	8	170	2	180	10	0	8	18	0	135	**5**	140	
Total Volume	15	1	0	16	33	1023	7	1063	40	0	30	70	2	739	9	750	
% App. Total	93.8	6.2	0		3.1	96.2	0.7		57.1	0	42.9		0.3	98.5	1.2		
PHF	.536	.250	.000	.571	.589	.830	.583	.818	.769	.000	.469	.700	.250	.807	.450	.808	

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City of Menifee
N/S: Oakhurst Avenue
E/W: McCall Boulevard
Weather: Clear

File Name : 07_MEN_Oak_McC PM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 1

Groups Printed- Total Volume

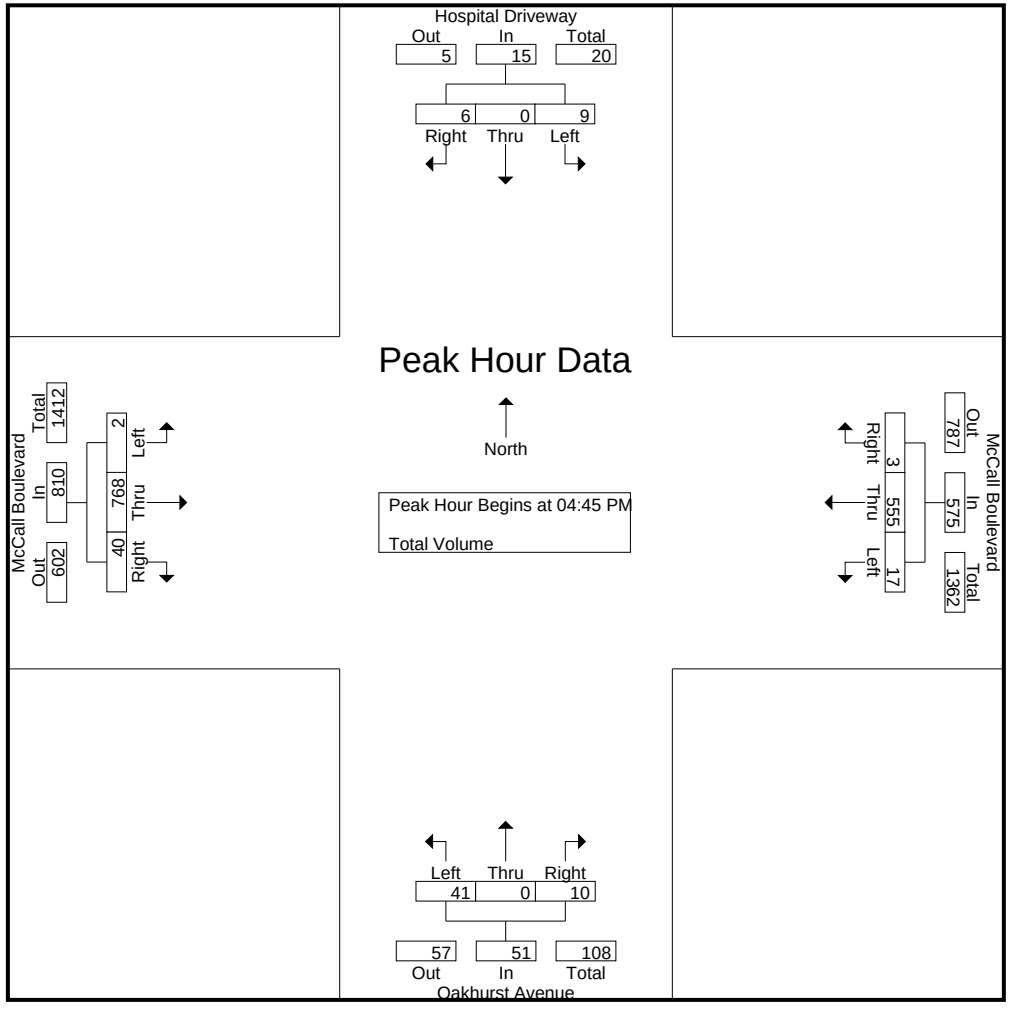
	Hospital Driveway Southbound					McCall Boulevard Westbound					Oakhurst Avenue Northbound					McCall Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	2	0	2	1	4	7	135	1	0	143	6	0	1	1	7	0	151	13	1	164	3	318	321
04:15 PM	2	0	0	0	2	2	115	2	0	119	7	0	1	0	8	0	188	6	0	194	0	323	323
04:30 PM	3	0	2	0	5	5	129	1	0	135	3	0	0	0	3	2	201	12	2	215	2	358	360
04:45 PM	4	0	1	0	5	3	117	0	0	120	9	0	2	0	11	1	189	8	0	198	0	334	334
Total	11	0	5	1	16	17	496	4	0	517	25	0	4	1	29	3	729	39	3	771	5	1333	1338
05:00 PM	1	0	1	1	2	4	147	0	0	151	9	0	2	2	11	0	199	11	0	210	3	374	377
05:15 PM	3	0	4	1	7	4	131	1	0	136	9	0	2	2	11	0	175	10	2	185	5	339	344
05:30 PM	1	0	0	0	1	6	160	2	0	168	14	0	4	4	18	1	205	11	1	217	5	404	409
05:45 PM	2	0	1	0	3	4	104	1	0	109	10	0	4	4	14	1	168	11	0	180	4	306	310
Total	7	0	6	2	13	18	542	4	0	564	42	0	12	12	54	2	747	43	3	792	17	1423	1440
Grand Total	18	0	11	3	29	35	1038	8	0	1081	67	0	16	13	83	5	1476	82	6	1563	22	2756	2778
Apprch %	62.1	0	37.9			3.2	96	0.7			80.7	0	19.3			0.3	94.4	5.2					
Total %	0.7	0	0.4		1.1	1.3	37.7	0.3		39.2	2.4	0	0.6		3	0.2	53.6	3		56.7	0.8	99.2	

	Hospital Driveway Southbound				McCall Boulevard Westbound				Oakhurst Avenue Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	**4**	0	1	5	3	117	0	120	9	0	2	11	**1**	189	8	198	334
05:00 PM	1	0	1	2	4	147	0	151	9	0	2	11	0	199	**11**	210	374
05:15 PM	3	0	**4**	**7**	4	131	1	136	9	0	2	11	0	175	10	185	339
05:30 PM	1	0	0	1	**6**	**160**	**2**	**168**	**14**	0	**4**	**18**	1	**205**	11	**217**	**404**
Total Volume	9	0	6	15	17	555	3	575	41	0	10	51	2	768	40	810	1451
% App. Total	60	0	40		3	96.5	0.5		80.4	0	19.6		0.2	94.8	4.9		
PHF	.563	.000	.375	.536	.708	.867	.375	.856	.732	.000	.625	.708	.500	.937	.909	.933	.898

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City of Menifee
N/S: Oakhurst Avenue
E/W: McCall Boulevard
Weather: Clear

File Name : 07_MEN_Oak_McC PM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 2



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City of Menifee
N/S: Oakhurst Avenue
E/W: McCall Boulevard
Weather: Clear

File Name : 07_MEN_Oak_McC PM
Site Code : 05122850
Start Date : 9/27/2022

	Hospital Driveway Southbound				McCall Boulevard Westbound				Oakhurst Avenue Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:30 PM				04:45 PM				05:00 PM				04:15 PM				
+0 mins.	3	0	2	5	3	117	0	120	9	0	2	11	0	188	6	194	
+15 mins.	**4**	0	1	5	4	147	0	151	9	0	2	11	**2**	**201**	**12**	**215**	
+30 mins.	1	0	1	2	4	131	1	136	**14**	0	**4**	**18**	1	189	8	198	
+45 mins.	3	0	**4**	**7**	**6**	**160**	**2**	**168**	10	0	4	14	0	199	11	210	
Total Volume	11	0	8	19	17	555	3	575	42	0	12	54	3	777	37	817	
% App. Total	57.9	0	42.1		3	96.5	0.5		77.8	0	22.2		0.4	95.1	4.5		
PHF	.688	.000	.500	.679	.708	.867	.375	.856	.750	.000	.750	.750	.375	.966	.771	.950	

Location: Menifee
N/S: Oakhurst Avenue
E/W: McCall Boulevard

Date: 9/27/2022
Day: Tuesday

PEDESTRIANS

	North Leg Hospital Driveway	East Leg McCall Boulevard	South Leg Oakhurst Avenue	West Leg McCall Boulevard	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

	North Leg Hospital Driveway	East Leg McCall Boulevard	South Leg Oakhurst Avenue	West Leg McCall Boulevard	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

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Location: Menifee
N/S: Oakhurst Avenue
E/W: McCall Boulevard

Date: 9/27/2022
Day: Tuesday

BICYCLES

	Southbound Hospital Driveway			Westbound McCall Boulevard			Northbound Oakhurst Avenue			Eastbound McCall Boulevard			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

	Southbound Hospital Driveway			Westbound McCall Boulevard			Northbound Oakhurst Avenue			Eastbound McCall Boulevard			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

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City of Menifee
N/S: Junipero Road
E/W: Heritage Lake Drive
Weather: Clear

File Name : 08_MEN_Juni_Her AM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 1

Groups Printed- Total Volume

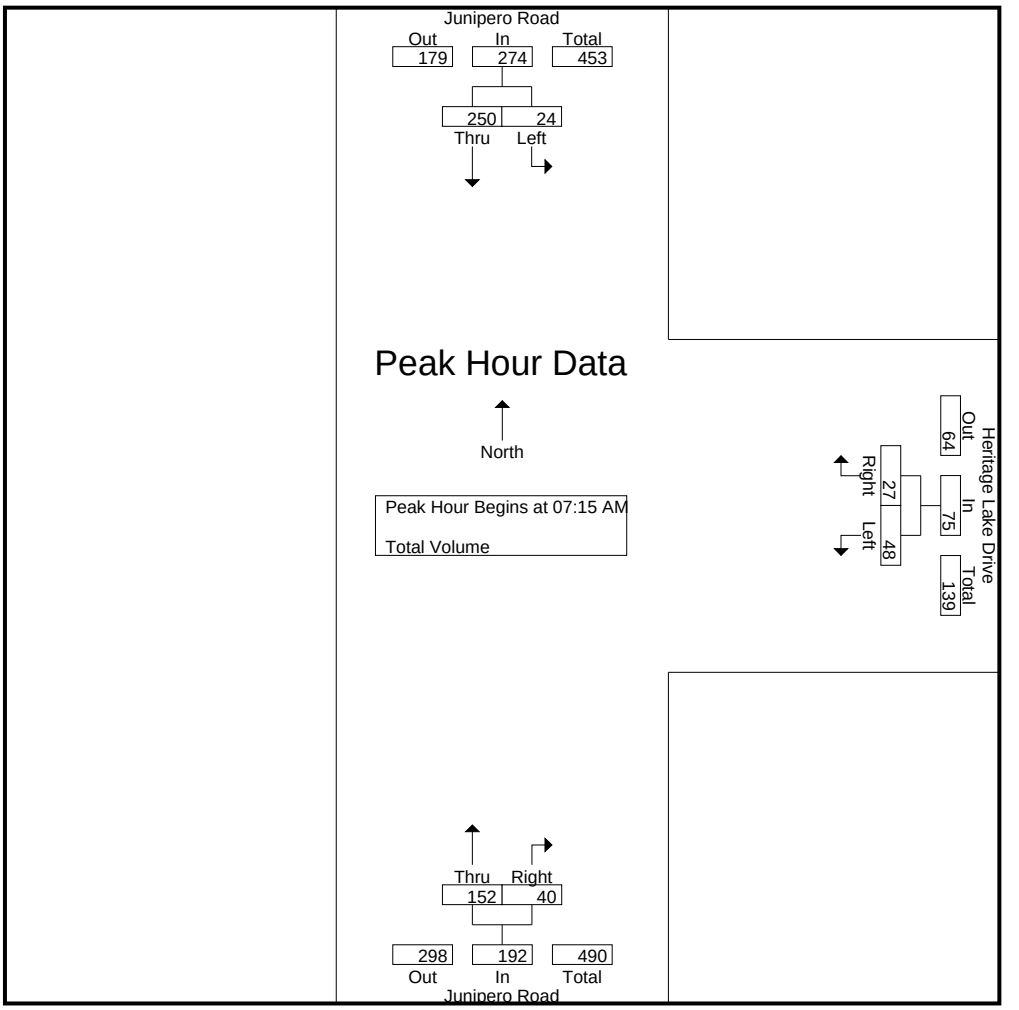
	Junipero Road Southbound				Heritage Lake Drive Westbound				Junipero Road Northbound						
Start Time	Left	Thru	RTOR	App. Total	Left	Right	RTOR	App. Total	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	1	14	0	15	5	1	0	6	2	1	0	3	0	24	24
07:15 AM	7	50	3	57	16	2	0	18	12	4	0	16	3	91	94
07:30 AM	7	124	22	131	17	7	1	24	44	13	0	57	23	212	235
07:45 AM	7	62	9	69	10	10	0	20	81	20	0	101	9	190	199
Total	22	250	34	272	48	20	1	68	139	38	0	177	35	517	552
08:00 AM	3	14	0	17	5	8	0	13	15	3	0	18	0	48	48
08:15 AM	5	0	2	5	2	2	0	4	7	4	0	11	2	20	22
08:30 AM	1	3	0	4	2	3	0	5	9	0	0	9	0	18	18
08:45 AM	2	3	0	5	0	1	0	1	3	0	0	3	0	9	9
Total	11	20	2	31	9	14	0	23	34	7	0	41	2	95	97
Grand Total	33	270	36	303	57	34	1	91	173	45	0	218	37	612	649
Apprch %	10.9	89.1			62.6	37.4			79.4	20.6					
Total %	5.4	44.1		49.5	9.3	5.6		14.9	28.3	7.4		35.6	5.7	94.3	

	Junipero Road Southbound			Heritage Lake Drive Westbound			Junipero Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	**7**	50	57	16	2	18	12	4	16	91
07:30 AM	7	**124**	**131**	**17**	7	**24**	44	13	57	**212**
07:45 AM	7	62	69	10	**10**	20	**81**	**20**	**101**	190
08:00 AM	3	14	17	5	8	13	15	3	18	48
Total Volume	24	250	274	48	27	75	152	40	192	541
% App. Total	8.8	91.2		64	36		79.2	20.8		
PHF	.857	.504	.523	.706	.675	.781	.469	.500	.475	.638

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City of Menifee
N/S: Junipero Road
E/W: Heritage Lake Drive
Weather: Clear

File Name : 08_MEN_Juni_Her AM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM			07:15 AM			07:15 AM		
+0 mins.	**7**	50	57	16	2	18	12	4	16
+15 mins.	7	**124**	**131**	**17**	7	**24**	44	13	57
+30 mins.	7	62	69	10	**10**	20	**81**	**20**	**101**
+45 mins.	3	14	17	5	8	13	15	3	18
Total Volume	24	250	274	48	27	75	152	40	192
% App. Total	8.8	91.2		64	36		79.2	20.8	
PHF	.857	.504	.523	.706	.675	.781	.469	.500	.475

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City of Menifee
N/S: Junipero Road
E/W: Heritage Lake Drive
Weather: Clear

File Name : 08_MEN_Juni_Her PM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 1

Groups Printed- Total Volume

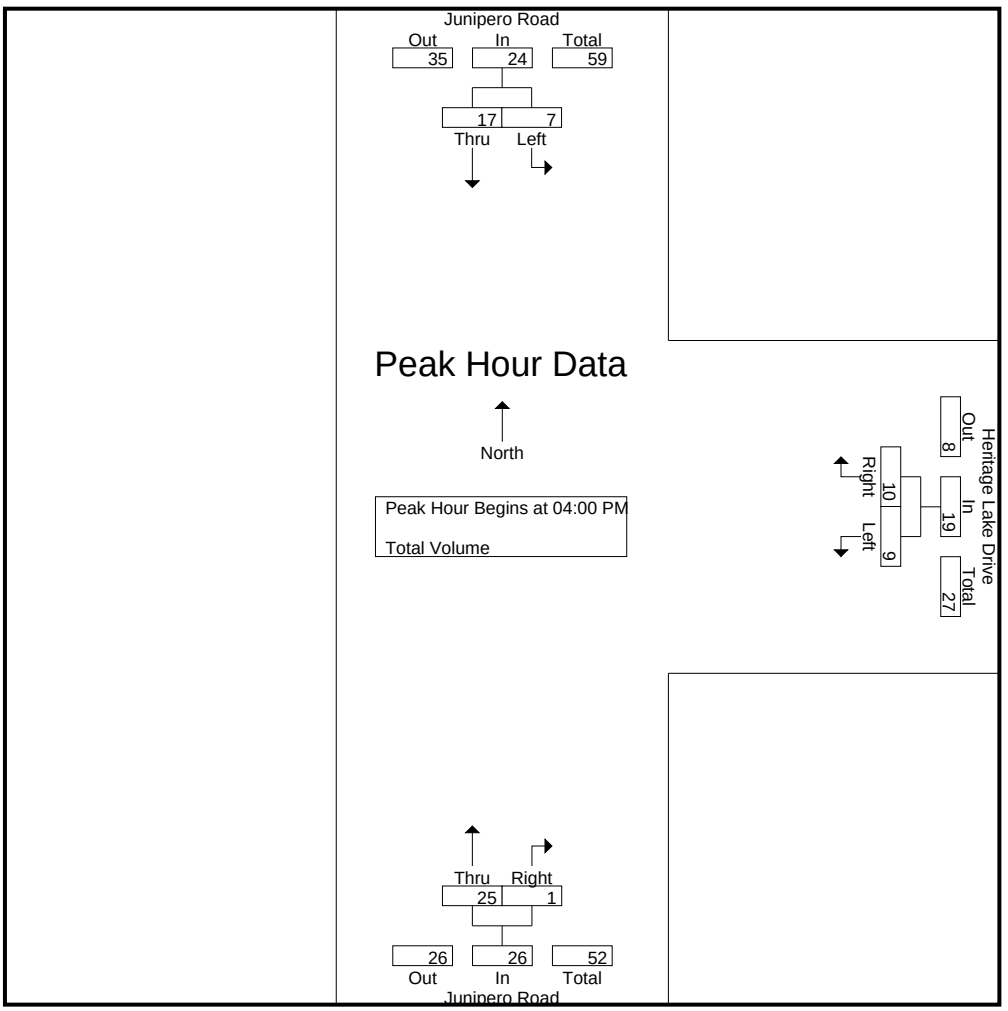
	Junipero Road Southbound				Heritage Lake Drive Westbound				Junipero Road Northbound						
Start Time	Left	Thru	RTOR	App. Total	Left	Right	RTOR	App. Total	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	2	2	0	4	3	4	0	7	6	0	0	6	0	17	17
04:15 PM	3	6	0	9	2	4	0	6	7	1	0	8	0	23	23
04:30 PM	2	4	0	6	2	1	0	3	5	0	0	5	0	14	14
04:45 PM	0	5	0	5	2	1	0	3	7	0	0	7	0	15	15
Total	7	17	0	24	9	10	0	19	25	1	0	26	0	69	69
05:00 PM	0	4	0	4	2	1	0	3	6	2	0	8	0	15	15
05:15 PM	2	5	0	7	1	2	0	3	2	0	0	2	0	12	12
05:30 PM	1	6	0	7	2	1	0	3	7	0	0	7	0	17	17
05:45 PM	0	1	0	1	7	2	0	9	2	2	0	4	0	14	14
Total	3	16	0	19	12	6	0	18	17	4	0	21	0	58	58
Grand Total	10	33	0	43	21	16	0	37	42	5	0	47	0	127	127
Apprch %	23.3	76.7			56.8	43.2			89.4	10.6					
Total %	7.9	26		33.9	16.5	12.6		29.1	33.1	3.9		37	0	100	

	Junipero Road Southbound			Heritage Lake Drive Westbound			Junipero Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	2	2	4	**3**	**4**	**7**	6	0	6	17
04:15 PM	**3**	**6**	**9**	2	4	6	**7**	**1**	**8**	**23**
04:30 PM	2	4	6	2	1	3	5	0	5	14
04:45 PM	0	5	5	2	1	3	7	0	7	15
Total Volume	7	17	24	9	10	19	25	1	26	69
% App. Total	29.2	70.8		47.4	52.6		96.2	3.8		
PHF	.583	.708	.667	.750	.625	.679	.893	.250	.813	.750

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City of Menifee
N/S: Junipero Road
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Weather: Clear

File Name : 08_MEN_Juni_Her PM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			04:15 PM		
+0 mins.	2	2	4	**3**	**4**	**7**	**7**	1	**8**
+15 mins.	**3**	**6**	**9**	2	4	6	5	0	5
+30 mins.	2	4	6	2	1	3	7	0	7
+45 mins.	0	5	5	2	1	3	6	**2**	8
Total Volume	7	17	24	9	10	19	25	3	28
% App. Total	29.2	70.8		47.4	52.6		89.3	10.7	
PHF	.583	.708	.667	.750	.625	.679	.893	.375	.875

Location: Menifee
N/S: Junipero Road
E/W: Heritage Lake Drive

Date: 9/27/2022
Day: Tuesday

PEDESTRIANS

	North Leg Junipero Road	East Leg Heritage Lake Drive	South Leg Junipero Road	West Leg Dead End	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

	North Leg Junipero Road	East Leg Heritage Lake Drive	South Leg Junipero Road	West Leg Dead End	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

Location: Menifee
N/S: Junipero Road
E/W: Heritage Lake Drive

Date: 9/27/2022
Day: Tuesday

BICYCLES

	Southbound Junipero Road			Westbound Heritage Lake Drive			Northbound Junipero Road			Eastbound Dead End			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

	Southbound Junipero Road			Westbound Heritage Lake Drive			Northbound Junipero Road			Eastbound Dead End			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	1	0	0	0	0	0	0	1	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	1	0	0	0	0	0	0	1	0	0	0	2

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City of Menifee
N/S: Junipero Road
E/W: McCall Boulevard
Weather: Clear

File Name : 09_MEN_Juni_McC AM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 1

Groups Printed- Total Volume

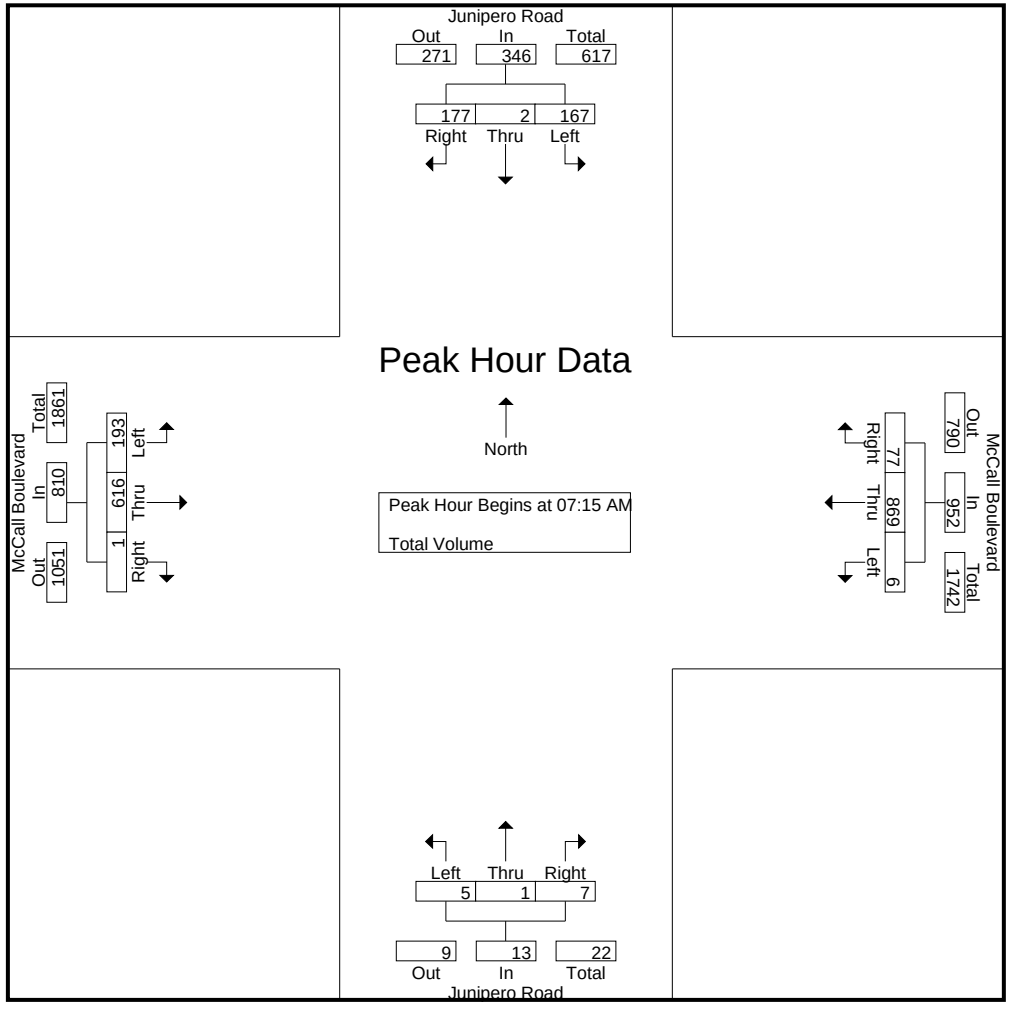
	Junipero Road Southbound					McCall Boulevard Westbound					Junipero Road Northbound					McCall Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	1	0	4	3	5	1	155	12	2	168	0	0	0	0	0	10	93	0	0	103	5	276	281
07:15 AM	17	1	14	8	32	1	150	24	12	175	1	0	1	1	2	52	166	0	0	218	21	427	448
07:30 AM	74	1	63	25	138	0	223	37	6	260	1	1	1	1	3	98	156	0	0	254	32	655	687
07:45 AM	73	0	80	36	153	1	257	10	0	268	2	0	4	3	6	34	162	0	0	196	39	623	662
Total	165	2	161	72	328	3	785	83	20	871	4	1	6	5	11	194	577	0	0	771	97	1981	2078
08:00 AM	3	0	20	10	23	4	239	6	1	249	1	0	1	1	2	9	132	1	0	142	12	416	428
08:15 AM	4	0	2	1	6	1	171	6	2	178	2	0	2	1	4	5	137	0	0	142	4	330	334
08:30 AM	1	0	5	5	6	1	151	4	0	156	1	0	0	0	1	5	95	0	0	100	5	263	268
08:45 AM	1	0	4	3	5	1	112	0	0	113	0	0	1	1	1	2	78	0	0	80	4	199	203
Total	9	0	31	19	40	7	673	16	3	696	4	0	4	3	8	21	442	1	0	464	25	1208	1233
Grand Total	174	2	192	91	368	10	1458	99	23	1567	8	1	10	8	19	215	1019	1	0	1235	122	3189	3311
Apprch %	47.3	0.5	52.2			0.6	93	6.3			42.1	5.3	52.6			17.4	82.5	0.1					
Total %	5.5	0.1	6		11.5	0.3	45.7	3.1		49.1	0.3	0	0.3		0.6	6.7	32	0		38.7	3.7	96.3	

	Junipero Road Southbound				McCall Boulevard Westbound				Junipero Road Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	17	**1**	14	32	1	150	24	175	1	0	1	2	52	**166**	0	218	427
07:30 AM	**74**	1	63	138	0	223	**37**	260	1	**1**	1	3	**98**	156	0	**254**	**655**
07:45 AM	73	0	**80**	**153**	1	**257**	10	**268**	**2**	0	**4**	**6**	34	162	0	196	623
08:00 AM	3	0	20	23	**4**	239	6	249	1	0	1	2	9	132	**1**	142	416
Total Volume	167	2	177	346	6	869	77	952	5	1	7	13	193	616	1	810	2121
% App. Total	48.3	0.6	51.2		0.6	91.3	8.1		38.5	7.7	53.8		23.8	76	0.1		
PHF	.564	.500	.553	.565	.375	.845	.520	.888	.625	.250	.438	.542	.492	.928	.250	.797	.810

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City of Menifee
N/S: Junipero Road
E/W: McCall Boulevard
Weather: Clear

File Name : 09_MEN_Juni_McC AM
Site Code : 05122850
Start Date : 9/27/2022
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City of Menifee
N/S: Junipero Road
E/W: McCall Boulevard
Weather: Clear

File Name : 09_MEN_Juni_McC AM
Site Code : 05122850
Start Date : 9/27/2022

	Junipero Road Southbound				McCall Boulevard Westbound				Junipero Road Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:15 AM				07:30 AM				07:30 AM				07:15 AM				
+0 mins.	17	**1**	14	32	0	223	**37**	260	1	**1**	1	3	52	**166**	0	218	
+15 mins.	**74**	1	63	138	1	**257**	10	**268**	**2**	0	**4**	**6**	**98**	156	0	**254**	
+30 mins.	73	0	**80**	**153**	**4**	239	6	249	1	0	1	2	34	162	0	196	
+45 mins.	3	0	20	23	1	171	6	178	2	0	2	4	9	132	**1**	142	
Total Volume	167	2	177	346	6	890	59	955	6	1	8	15	193	616	1	810	
% App. Total	48.3	0.6	51.2		0.6	93.2	6.2		40	6.7	53.3		23.8	76	0.1		
PHF	.564	.500	.553	.565	.375	.866	.399	.891	.750	.250	.500	.625	.492	.928	.250	.797	

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City of Menifee
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File Name : 09_MEN_Juni_McC PM
Site Code : 05122850
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Groups Printed- Total Volume

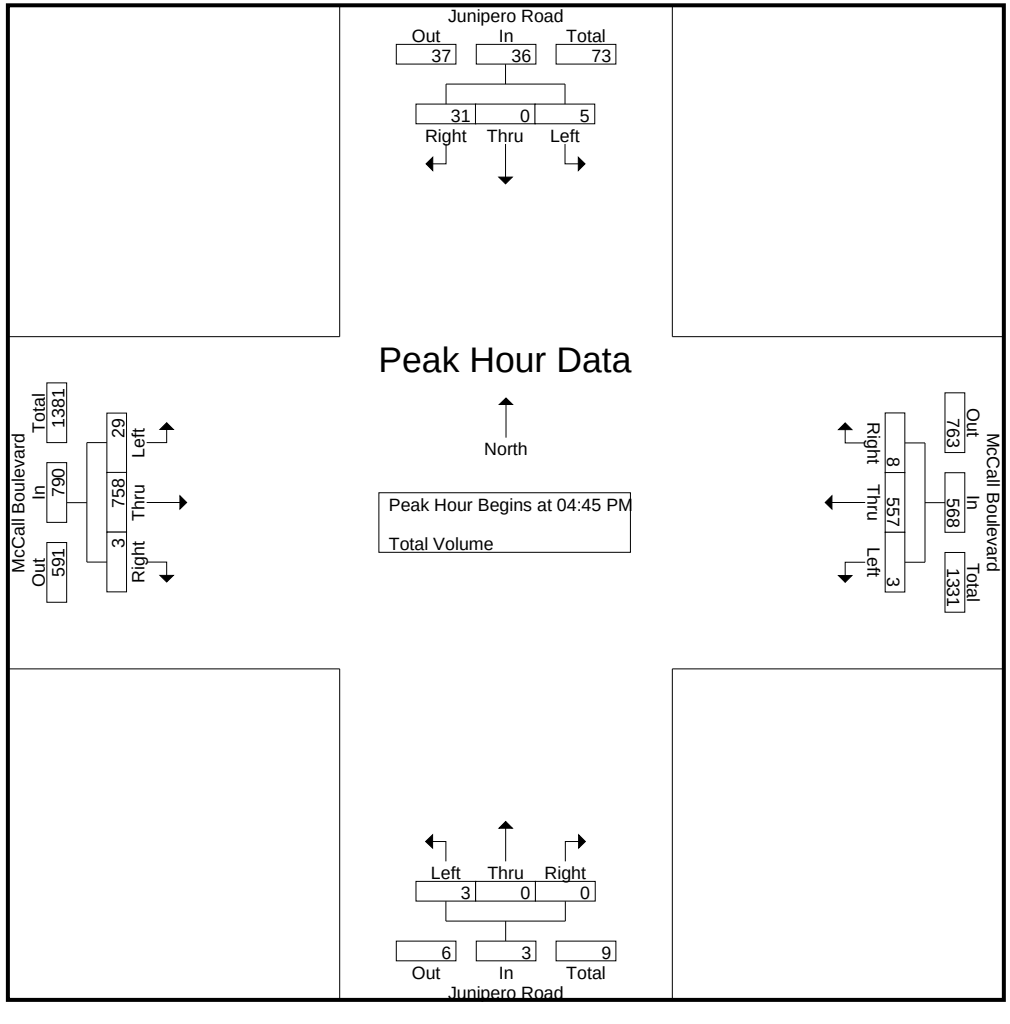
	Junipero Road Southbound					McCall Boulevard Westbound					Junipero Road Northbound					McCall Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	8	4	8	3	135	4	3	142	1	0	0	0	1	4	157	3	0	164	7	315	322
04:15 PM	1	0	5	4	6	0	106	1	1	107	1	0	1	0	2	6	160	0	0	166	5	281	286
04:30 PM	0	0	6	4	6	0	134	1	0	135	1	0	0	0	1	2	182	2	0	186	4	328	332
04:45 PM	1	0	10	8	11	1	117	1	0	119	1	0	0	0	1	10	194	0	0	204	8	335	343
Total	2	0	29	20	31	4	492	7	4	503	4	0	1	0	5	22	693	5	0	720	24	1259	1283
05:00 PM	3	0	2	2	5	0	145	2	0	147	1	0	0	0	1	9	185	1	0	195	2	348	350
05:15 PM	0	0	12	8	12	1	137	0	0	138	1	0	0	0	1	8	183	0	0	191	8	342	350
05:30 PM	1	0	7	5	8	1	158	5	1	164	0	0	0	0	0	2	196	2	0	200	6	372	378
05:45 PM	2	0	8	5	10	0	108	0	0	108	0	0	0	0	0	3	184	0	0	187	5	305	310
Total	6	0	29	20	35	2	548	7	1	557	2	0	0	0	2	22	748	3	0	773	21	1367	1388
Grand Total	8	0	58	40	66	6	1040	14	5	1060	6	0	1	0	7	44	1441	8	0	1493	45	2626	2671
Apprch %	12.1	0	87.9			0.6	98.1	1.3			85.7	0	14.3			2.9	96.5	0.5					
Total %	0.3	0	2.2		2.5	0.2	39.6	0.5		40.4	0.2	0	0		0.3	1.7	54.9	0.3		56.9	1.7	98.3	

	Junipero Road Southbound				McCall Boulevard Westbound				Junipero Road Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	1	0	10	11	**1**	117	1	119	**1**	0	0	**1**	**10**	194	0	**204**	335
05:00 PM	**3**	0	2	5	0	145	2	147	1	0	0	1	9	185	1	195	348
05:15 PM	0	0	**12**	**12**	1	137	0	138	1	0	0	1	8	183	0	191	342
05:30 PM	1	0	7	8	1	**158**	**5**	**164**	0	0	0	0	2	**196**	**2**	200	**372**
Total Volume	5	0	31	36	3	557	8	568	3	0	0	3	29	758	3	790	1397
% App. Total	13.9	0	86.1		0.5	98.1	1.4		100	0	0		3.7	95.9	0.4		
PHF	.417	.000	.646	.750	.750	.881	.400	.866	.750	.000	.000	.750	.725	.967	.375	.968	.939

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City of Menifee
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File Name : 09_MEN_Juni_McC PM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 2



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N/S: Junipero Road
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File Name : 09_MEN_Juni_McC PM
Site Code : 05122850
Start Date : 9/27/2022

	Junipero Road Southbound				McCall Boulevard Westbound				Junipero Road Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:45 PM				04:45 PM				04:00 PM				04:45 PM				
+0 mins.	1	0	10	11	**1**	117	1	119	**1**	0	0	1	**10**	194	0	**204**	
+15 mins.	**3**	0	2	5	0	145	2	147	1	0	**1**	**2**	9	185	1	195	
+30 mins.	0	0	**12**	**12**	1	137	0	138	1	0	0	1	8	183	0	191	
+45 mins.	1	0	7	8	1	**158**	**5**	**164**	1	0	0	1	2	**196**	**2**	200	
Total Volume	5	0	31	36	3	557	8	568	4	0	1	5	29	758	3	790	
% App. Total	13.9	0	86.1		0.5	98.1	1.4		80	0	20		3.7	95.9	0.4		
PHF	.417	.000	.646	.750	.750	.881	.400	.866	1.000	.000	.250	.625	.725	.967	.375	.968	

Location: Menifee
N/S: Junipero Road
E/W: McCall Boulevard

Date: 9/27/2022
Day: Tuesday

PEDESTRIANS

	North Leg Junipero Road	East Leg McCall Boulevard	South Leg Junipero Road	West Leg McCall Boulevard	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	1	1
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	1	1

	North Leg Junipero Road	East Leg McCall Boulevard	South Leg Junipero Road	West Leg McCall Boulevard	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

Counts Unlimited, Inc.
PO Box 1178
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951-268-6268

Location: Menifee
N/S: Junipero Road
E/W: McCall Boulevard

Date: 9/27/2022
Day: Tuesday

BICYCLES

	Southbound Junipero Road			Westbound McCall Boulevard			Northbound Junipero Road			Eastbound McCall Boulevard			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

	Southbound Junipero Road			Westbound McCall Boulevard			Northbound Junipero Road			Eastbound McCall Boulevard			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

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City of Menifee
N/S: Settlment Street
E/W: Heritage Lake Drive
Weather: Clear

File Name : 10_MEN_Set_Her AM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 1

Groups Printed- Total Volume

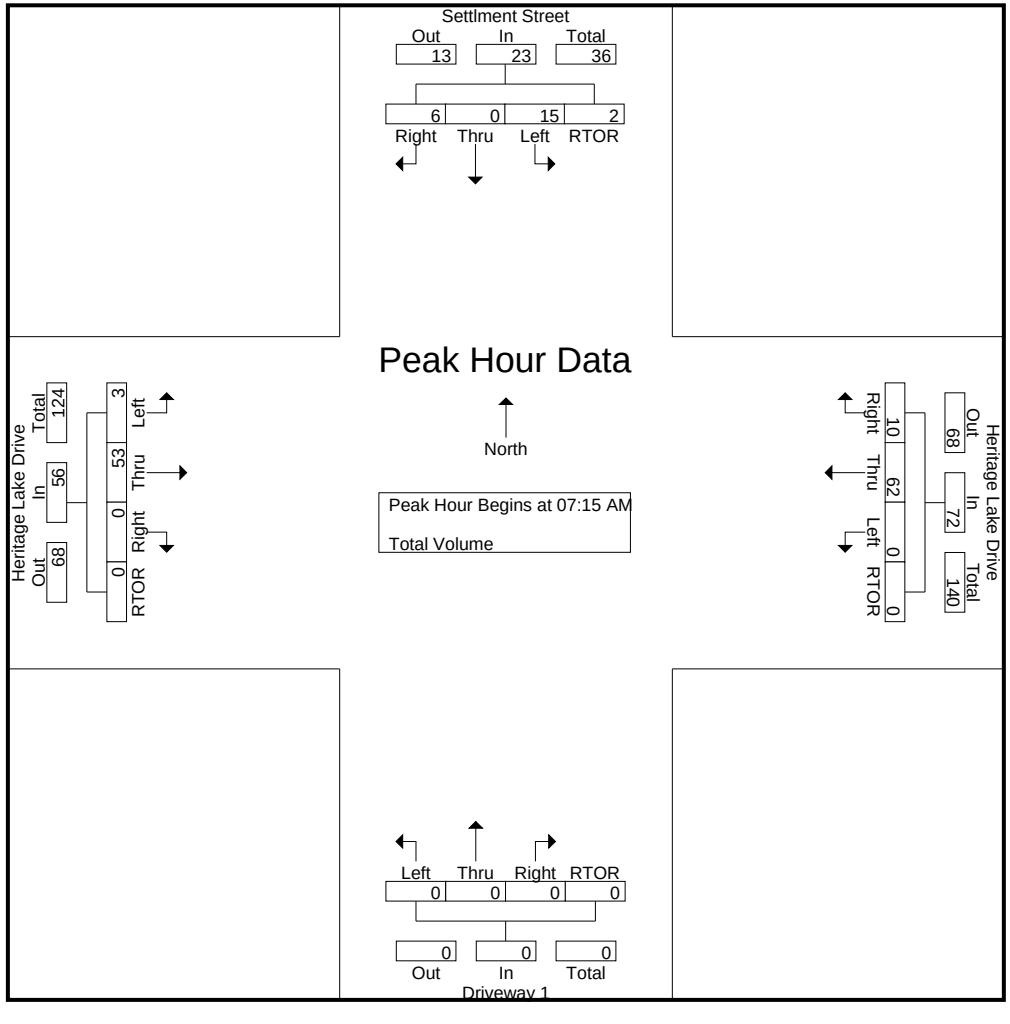
	Settlment Street Southbound					Heritage Lake Drive Westbound					Driveway 1 Northbound					Heritage Lake Drive Eastbound					
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Int. Total
07:00 AM	2	0	1	0	3	0	5	0	0	5	0	0	0	0	0	0	1	0	0	1	9
07:15 AM	3	0	0	0	3	0	19	2	0	21	0	0	0	0	0	1	8	0	0	9	33
07:30 AM	3	0	3	1	7	0	19	4	0	23	0	0	0	0	0	1	17	0	0	18	48
07:45 AM	4	0	1	1	6	0	17	3	0	20	0	0	0	0	0	0	24	0	0	24	50
Total	12	0	5	2	19	0	60	9	0	69	0	0	0	0	0	2	50	0	0	52	140
08:00 AM	5	0	2	0	7	0	7	1	0	8	0	0	0	0	0	1	4	0	0	5	20
08:15 AM	1	0	2	2	5	0	2	2	0	4	0	0	0	0	0	1	6	0	0	7	16
08:30 AM	1	0	1	0	2	0	5	1	0	6	0	0	0	0	0	0	1	0	0	1	9
08:45 AM	3	0	1	1	5	0	2	1	0	3	0	0	0	0	0	0	2	0	0	2	10
Total	10	0	6	3	19	0	16	5	0	21	0	0	0	0	0	2	13	0	0	15	55
Grand Total	22	0	11	5	38	0	76	14	0	90	0	0	0	0	0	4	63	0	0	67	195
Apprch %	57.9	0	28.9	13.2		0	84.4	15.6	0		0	0	0	0		6	94	0	0		
Total %	11.3	0	5.6	2.6	19.5	0	39	7.2	0	46.2	0	0	0	0	0	2.1	32.3	0	0	34.4	

	Settlment Street Southbound					Heritage Lake Drive Westbound					Driveway 1 Northbound					Heritage Lake Drive Eastbound					
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	3	0	0	0	3	0	**19**	2	0	21	0	0	0	0	0	**1**	8	0	0	9	33
07:30 AM	3	0	**3**	**1**	**7**	0	19	**4**	0	**23**	0	0	0	0	0	1	17	0	0	18	48
07:45 AM	4	0	1	1	6	0	17	3	0	20	0	0	0	0	0	0	**24**	0	0	**24**	**50**
08:00 AM	**5**	0	2	0	7	0	7	1	0	8	0	0	0	0	0	1	4	0	0	5	20
Total Volume	15	0	6	2	23	0	62	10	0	72	0	0	0	0	0	3	53	0	0	56	151
% App. Total	65.2	0	26.1	8.7		0	86.1	13.9	0		0	0	0	0		5.4	94.6	0	0		
PHF	.750	.000	.500	.500	.821	.000	.816	.625	.000	.783	.000	.000	.000	.000	.000	.750	.552	.000	.000	.583	.755

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
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City of Menifee
N/S: Settlment Street
E/W: Heritage Lake Drive
Weather: Clear

File Name : 10_MEN_Set_Her AM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 2



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City of Menifee
N/S: Settlment Street
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File Name : 10_MEN_Set_Her AM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 3

	Settlment Street Southbound					Heritage Lake Drive Westbound					Driveway 1 Northbound					Heritage Lake Drive Eastbound					
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	07:30 AM					07:15 AM					07:00 AM					07:15 AM					
+0 mins.	3	0	**3**	1	**7**	0	**19**	2	0	21	0	0	0	0	0	**1**	8	0	0	9	
+15 mins.	4	0	1	1	6	0	19	**4**	0	**23**	0	0	0	0	0	1	17	0	0	18	
+30 mins.	**5**	0	2	0	7	0	17	3	0	20	0	0	0	0	0	0	**24**	0	0	**24**	
+45 mins.	1	0	2	**2**	5	0	7	1	0	8	0	0	0	0	0	1	4	0	0	5	
Total Volume	13	0	8	4	25	0	62	10	0	72	0	0	0	0	0	3	53	0	0	56	
% App. Total	52	0	32	16		0	86.1	13.9	0		0	0	0	0		5.4	94.6	0	0		
PHF	.650	.000	.667	.500	.893	.000	.816	.625	.000	.783	.000	.000	.000	.000	.000	.750	.552	.000	.000	.583	

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City of Menifee
N/S: Settlment Street
E/W: Heritage Lake Drive
Weather: Clear

File Name : 10_MEN_Set_Her PM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 1

Groups Printed- Total Volume

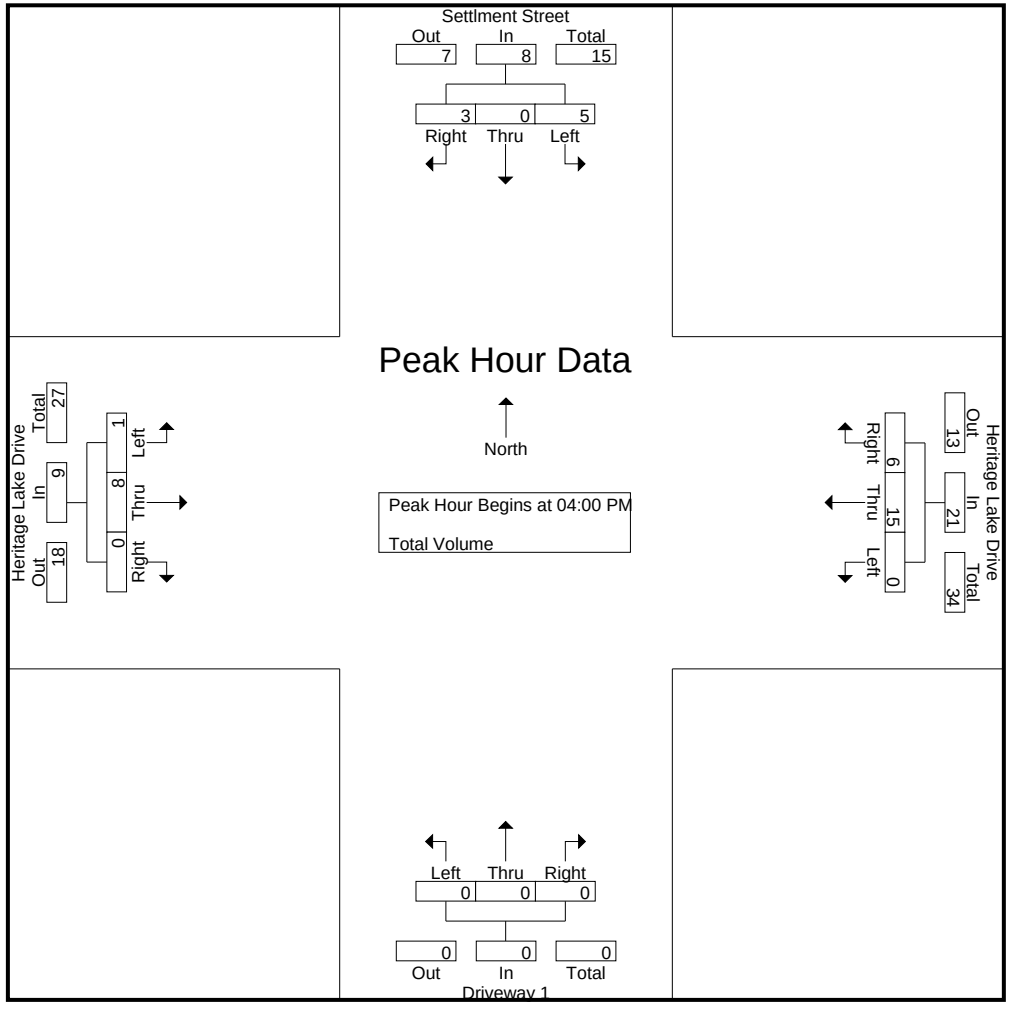
	Settlment Street Southbound					Heritage Lake Drive Westbound					Driveway 1 Northbound					Heritage Lake Drive Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	2	0	1	0	3	0	7	4	0	11	0	0	0	0	0	0	4	0	0	4	0	18	18
04:15 PM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	1	2	0	0	3	0	8	8
04:30 PM	2	0	1	0	3	0	2	1	0	3	0	0	0	0	0	0	2	0	0	2	0	8	8
04:45 PM	1	0	1	0	2	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	4	4
Total	5	0	3	0	8	0	15	6	0	21	0	0	0	0	0	1	8	0	0	9	0	38	38
05:00 PM	1	0	2	0	3	0	1	2	0	3	0	0	0	0	0	1	2	0	0	3	0	9	9
05:15 PM	2	0	0	0	2	0	2	1	0	3	0	0	0	0	0	0	2	0	0	2	0	7	7
05:30 PM	1	0	0	0	1	0	3	2	0	5	0	0	0	0	0	0	1	0	0	1	0	7	7
05:45 PM	1	0	1	0	2	0	4	2	0	6	0	0	0	0	0	1	1	0	0	2	0	10	10
Total	5	0	3	0	8	0	10	7	0	17	0	0	0	0	0	2	6	0	0	8	0	33	33
Grand Total	10	0	6	0	16	0	25	13	0	38	0	0	0	0	0	3	14	0	0	17	0	71	71
Apprch %	62.5	0	37.5			0	65.8	34.2			0	0	0			17.6	82.4	0					
Total %	14.1	0	8.5		22.5	0	35.2	18.3		53.5	0	0	0		0	4.2	19.7	0		23.9	0	100	

	Settlment Street Southbound				Heritage Lake Drive Westbound				Driveway 1 Northbound				Heritage Lake Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	**2**	0	**1**	**3**	0	**7**	**4**	**11**	0	0	0	0	0	**4**	0	**4**	**18**
04:15 PM	0	0	0	0	0	5	0	5	0	0	0	0	**1**	2	0	3	8
04:30 PM	2	0	1	3	0	2	1	3	0	0	0	0	0	2	0	2	8
04:45 PM	1	0	1	2	0	1	1	2	0	0	0	0	0	0	0	0	4
Total Volume	5	0	3	8	0	15	6	21	0	0	0	0	1	8	0	9	38
% App. Total	62.5	0	37.5		0	71.4	28.6		0	0	0		11.1	88.9	0		
PHF	.625	.000	.750	.667	.000	.536	.375	.477	.000	.000	.000	.000	.250	.500	.000	.563	.528

Counts Unlimited, Inc.
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City of Menifee
N/S: Settlment Street
E/W: Heritage Lake Drive
Weather: Clear

File Name : 10_MEN_Set_Her PM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 2



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City of Menifee
N/S: Settlment Street
E/W: Heritage Lake Drive
Weather: Clear

File Name : 10_MEN_Set_Her PM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 3

	Settlment Street Southbound				Heritage Lake Drive Westbound				Driveway 1 Northbound				Heritage Lake Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:30 PM				04:00 PM				04:00 PM				04:00 PM				
+0 mins.	**2**	0	1	**3**	0	**7**	**4**	**11**	0	0	0	0	0	**4**	0	**4**	
+15 mins.	1	0	1	2	0	5	0	5	0	0	0	0	**1**	2	0	3	
+30 mins.	1	0	**2**	3	0	2	1	3	0	0	0	0	0	2	0	2	
+45 mins.	2	0	0	2	0	1	1	2	0	0	0	0	0	0	0	0	
Total Volume	6	0	4	10	0	15	6	21	0	0	0	0	1	8	0	9	
% App. Total	60	0	40		0	71.4	28.6		0	0	0		11.1	88.9	0		
PHF	.750	.000	.500	.833	.000	.536	.375	.477	.000	.000	.000	.000	.250	.500	.000	.563	

Location: Menifee
N/S: Settlment Street
E/W: Heritage Lake Drive

Date: 9/27/2022
Day: Tuesday

PEDESTRIANS

	North Leg Settlment Street	East Leg Heritage Lake Drive	South Leg Driveway 1	West Leg Heritage Lake Drive	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

	North Leg Settlment Street	East Leg Heritage Lake Drive	South Leg Driveway 1	West Leg Heritage Lake Drive	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

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PO Box 1178
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951-268-6268

Location: Menifee
N/S: Settlment Street
E/W: Heritage Lake Drive

Date: 9/27/2022
Day: Tuesday

BICYCLES

	Southbound Settlment Street			Westbound Heritage Lake Drive			Northbound Driveway 1			Eastbound Heritage Lake Drive			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

	Southbound Settlment Street			Westbound Heritage Lake Drive			Northbound Driveway 1			Eastbound Heritage Lake Drive			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	1	0	0	1

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City of Menifee
N/S: Menifee Road
E/W: Heritage Lake Drive
Weather: Clear

File Name : 11_MEN_Meni_Her AM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 1

Groups Printed- Total Volume

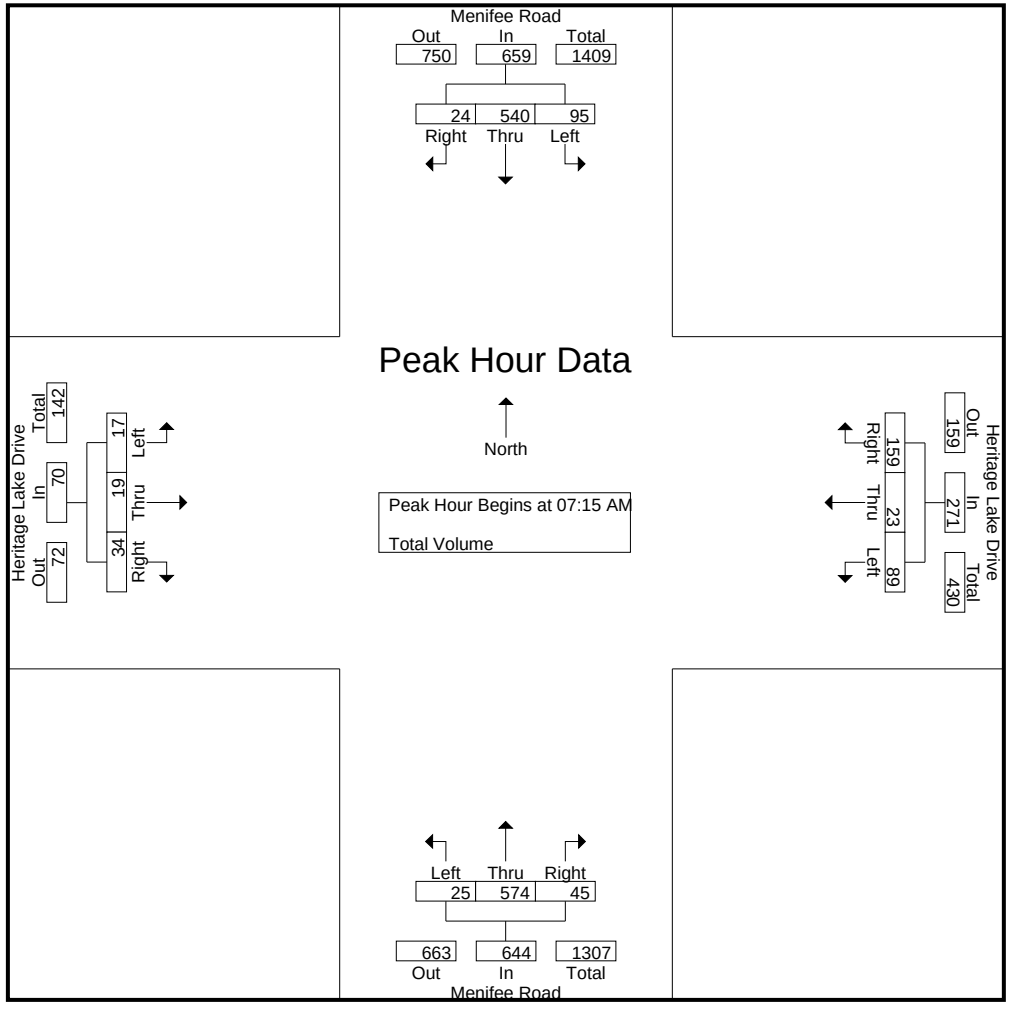
	Menifee Road Southbound					Heritage Lake Drive Westbound					Menifee Road Northbound					Heritage Lake Drive Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	17	74	1	0	92	11	3	16	12	30	1	68	2	1	71	1	0	1	1	2	14	195	209
07:15 AM	15	84	10	1	109	15	8	21	9	44	2	84	12	1	98	2	3	5	3	10	14	261	275
07:30 AM	36	179	9	4	224	25	9	48	27	82	5	124	27	10	156	8	5	9	6	22	47	484	531
07:45 AM	32	170	5	0	207	36	6	43	21	85	9	184	2	1	195	7	7	15	9	29	31	516	547
Total	100	507	25	5	632	87	26	128	69	241	17	460	43	13	520	18	15	30	19	63	106	1456	1562
08:00 AM	12	107	0	0	119	13	0	47	24	60	9	182	4	0	195	0	4	5	3	9	27	383	410
08:15 AM	11	69	0	0	80	8	2	19	12	29	2	101	3	1	106	2	0	3	1	5	14	220	234
08:30 AM	12	93	1	0	106	9	1	17	12	27	4	66	8	0	78	1	0	2	2	3	14	214	228
08:45 AM	9	77	2	0	88	6	1	11	8	18	2	78	13	0	93	2	0	3	2	5	10	204	214
Total	44	346	3	0	393	36	4	94	56	134	17	427	28	1	472	5	4	13	8	22	65	1021	1086
Grand Total	144	853	28	5	1025	123	30	222	125	375	34	887	71	14	992	23	19	43	27	85	171	2477	2648
Apprch %	14	83.2	2.7			32.8	8	59.2			3.4	89.4	7.2			27.1	22.4	50.6					
Total %	5.8	34.4	1.1		41.4	5	1.2	9		15.1	1.4	35.8	2.9		40	0.9	0.8	1.7		3.4	6.5	93.5	

	Menifee Road Southbound				Heritage Lake Drive Westbound				Menifee Road Northbound				Heritage Lake Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	15	84	**10**	109	15	8	21	44	2	84	12	98	2	3	5	10	261
07:30 AM	**36**	**179**	9	**224**	25	**9**	**48**	82	5	124	**27**	156	**8**	5	9	22	484
07:45 AM	32	170	5	207	**36**	6	43	**85**	**9**	**184**	2	**195**	7	**7**	**15**	**29**	**516**
08:00 AM	12	107	0	119	13	0	47	60	9	182	4	195	0	4	5	9	383
Total Volume	95	540	24	659	89	23	159	271	25	574	45	644	17	19	34	70	1644
% App. Total	14.4	81.9	3.6		32.8	8.5	58.7		3.9	89.1	7		24.3	27.1	48.6		
PHF	.660	.754	.600	.735	.618	.639	.828	.797	.694	.780	.417	.826	.531	.679	.567	.603	.797

Counts Unlimited, Inc.
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City of Menifee
N/S: Menifee Road
E/W: Heritage Lake Drive
Weather: Clear

File Name : 11_MEN_Meni_Her AM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 2



Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951)268-6268

City of Menifee
N/S: Menifee Road
E/W: Heritage Lake Drive
Weather: Clear

File Name : 11_MEN_Meni_Her AM
Site Code : 05122850
Start Date : 9/27/2022

	Menifee Road Southbound				Heritage Lake Drive Westbound				Menifee Road Northbound				Heritage Lake Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:15 AM				07:15 AM				07:30 AM				07:15 AM				
+0 mins.	15	84	**10**	109	15	8	21	44	5	124	**27**	156	2	3	5	10	
+15 mins.	**36**	**179**	9	**224**	25	**9**	**48**	82	**9**	**184**	2	**195**	**8**	5	9	22	
+30 mins.	32	170	5	207	**36**	6	43	**85**	9	182	4	195	7	**7**	**15**	**29**	
+45 mins.	12	107	0	119	13	0	47	60	2	101	3	106	0	4	5	9	
Total Volume	95	540	24	659	89	23	159	271	25	591	36	652	17	19	34	70	
% App. Total	14.4	81.9	3.6		32.8	8.5	58.7		3.8	90.6	5.5		24.3	27.1	48.6		
PHF	.660	.754	.600	.735	.618	.639	.828	.797	.694	.803	.333	.836	.531	.679	.567	.603	

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File Name : 11_MEN_Meni_Her PM
Site Code : 05122850
Start Date : 9/27/2022
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Groups Printed- Total Volume

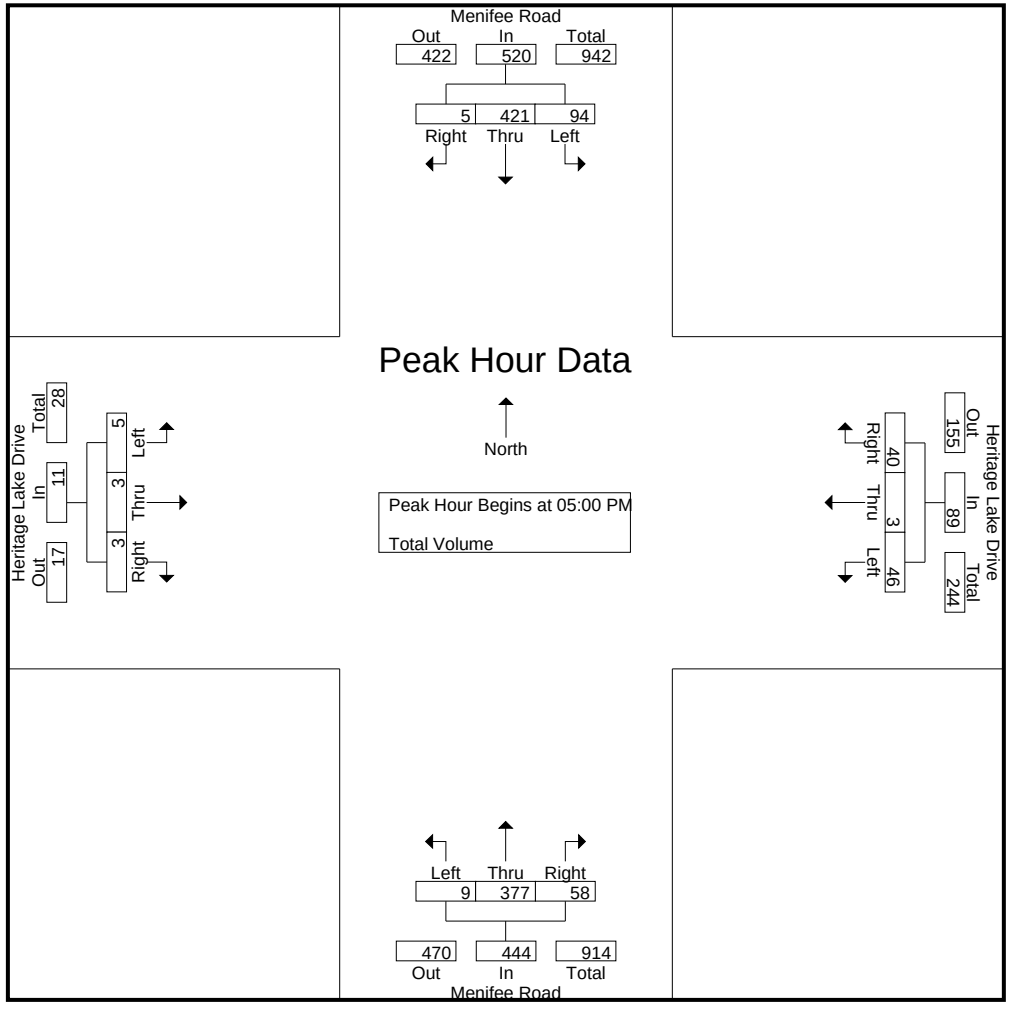
	Menifee Road Southbound					Heritage Lake Drive Westbound					Menifee Road Northbound					Heritage Lake Drive Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	17	107	4	1	128	6	0	13	8	19	6	90	14	0	110	4	0	3	2	7	11	264	275
04:15 PM	14	103	0	0	117	7	2	7	6	16	3	97	9	0	109	0	0	2	2	2	8	244	252
04:30 PM	21	113	0	0	134	9	1	8	6	18	2	87	9	0	98	0	0	4	4	4	10	254	264
04:45 PM	18	94	1	0	113	5	1	11	9	17	0	102	15	0	117	0	0	1	1	1	10	248	258
Total	70	417	5	1	492	27	4	39	29	70	11	376	47	0	434	4	0	10	9	14	39	1010	1049
05:00 PM	19	111	2	0	132	12	1	8	6	21	0	102	11	0	113	1	1	1	0	3	6	269	275
05:15 PM	17	111	0	0	128	11	0	14	10	25	3	97	13	1	113	1	2	1	0	4	11	270	281
05:30 PM	21	112	2	1	135	11	1	9	5	21	2	99	17	3	118	2	0	0	0	2	9	276	285
05:45 PM	37	87	1	0	125	12	1	9	7	22	4	79	17	0	100	1	0	1	0	2	7	249	256
Total	94	421	5	1	520	46	3	40	28	89	9	377	58	4	444	5	3	3	0	11	33	1064	1097
Grand Total	164	838	10	2	1012	73	7	79	57	159	20	753	105	4	878	9	3	13	9	25	72	2074	2146
Apprch %	16.2	82.8	1			45.9	4.4	49.7			2.3	85.8	12			36	12	52					
Total %	7.9	40.4	0.5		48.8	3.5	0.3	3.8		7.7	1	36.3	5.1		42.3	0.4	0.1	0.6		1.2	3.4	96.6	

	Menifee Road Southbound				Heritage Lake Drive Westbound				Menifee Road Northbound				Heritage Lake Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	19	111	**2**	132	**12**	**1**	8	21	0	**102**	11	113	1	1	**1**	3	269
05:15 PM	17	111	0	128	11	0	**14**	**25**	3	97	13	113	1	**2**	1	**4**	270
05:30 PM	21	**112**	2	**135**	11	1	9	21	2	99	**17**	**118**	**2**	0	0	2	**276**
05:45 PM	**37**	87	1	125	12	1	9	22	**4**	79	17	100	1	0	1	2	249
Total Volume	94	421	5	520	46	3	40	89	9	377	58	444	5	3	3	11	1064
% App. Total	18.1	81	1		51.7	3.4	44.9		2	84.9	13.1		45.5	27.3	27.3		
PHF	.635	.940	.625	.963	.958	.750	.714	.890	.563	.924	.853	.941	.625	.375	.750	.688	.964

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City of Menifee
N/S: Menifee Road
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File Name : 11_MEN_Meni_Her PM
Site Code : 05122850
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City of Menifee
N/S: Menifee Road
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File Name : 11_MEN_Meni_Her PM
Site Code : 05122850
Start Date : 9/27/2022

	Menifee Road Southbound				Heritage Lake Drive Westbound				Menifee Road Northbound				Heritage Lake Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	05:00 PM				05:00 PM				04:45 PM				04:00 PM				
+0 mins.	19	111	**2**	132	**12**	**1**	8	21	0	**102**	15	117	**4**	0	3	**7**	
+15 mins.	17	111	0	128	11	0	**14**	**25**	0	102	11	113	0	0	2	2	
+30 mins.	21	**112**	2	**135**	11	1	9	21	**3**	97	13	113	0	0	**4**	4	
+45 mins.	**37**	87	1	125	12	1	9	22	2	99	**17**	**118**	0	0	1	1	
Total Volume	94	421	5	520	46	3	40	89	5	400	56	461	4	0	10	14	
% App. Total	18.1	81	1		51.7	3.4	44.9		1.1	86.8	12.1		28.6	0	71.4		
PHF	.635	.940	.625	.963	.958	.750	.714	.890	.417	.980	.824	.977	.250	.000	.625	.500	

Location: Menifee
N/S: Menifee Road
E/W: Heritage Lake Drive

Date: 9/27/2022
Day: Tuesday

PEDESTRIANS

	North Leg Menifee Road	East Leg Heritage Lake Drive	South Leg Menifee Road	West Leg Heritage Lake Drive	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	1	1	0	0	2
7:45 AM	0	0	0	0	0
8:00 AM	5	1	0	0	6
8:15 AM	5	1	0	0	6
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	11	3	0	0	14

	North Leg Menifee Road	East Leg Heritage Lake Drive	South Leg Menifee Road	West Leg Heritage Lake Drive	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

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Location: Menifee
N/S: Menifee Road
E/W: Heritage Lake Drive

Date: 9/27/2022
Day: Tuesday

BICYCLES

	Southbound Menifee Road			Westbound Heritage Lake Drive			Northbound Menifee Road			Eastbound Heritage Lake Drive			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	1	0	0	0	0	0	1	0	1	2	0	5
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	1	0	0	2	0	0	0	0	1	0	4
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
TOTAL VOLUMES:	0	2	1	0	1	2	0	1	0	1	3	0	11

	Southbound Menifee Road			Westbound Heritage Lake Drive			Northbound Menifee Road			Eastbound Heritage Lake Drive			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	1	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	1	0	0	0	1	0	0	0	0	2

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City of Menifee
N/S: Menifee Road
E/W: McCall Boulevard
Weather: Clear

File Name : 13_MEN_Meni_McC AM
Site Code : 05122850
Start Date : 9/27/2022
Page No : 1

Groups Printed- Total Volume

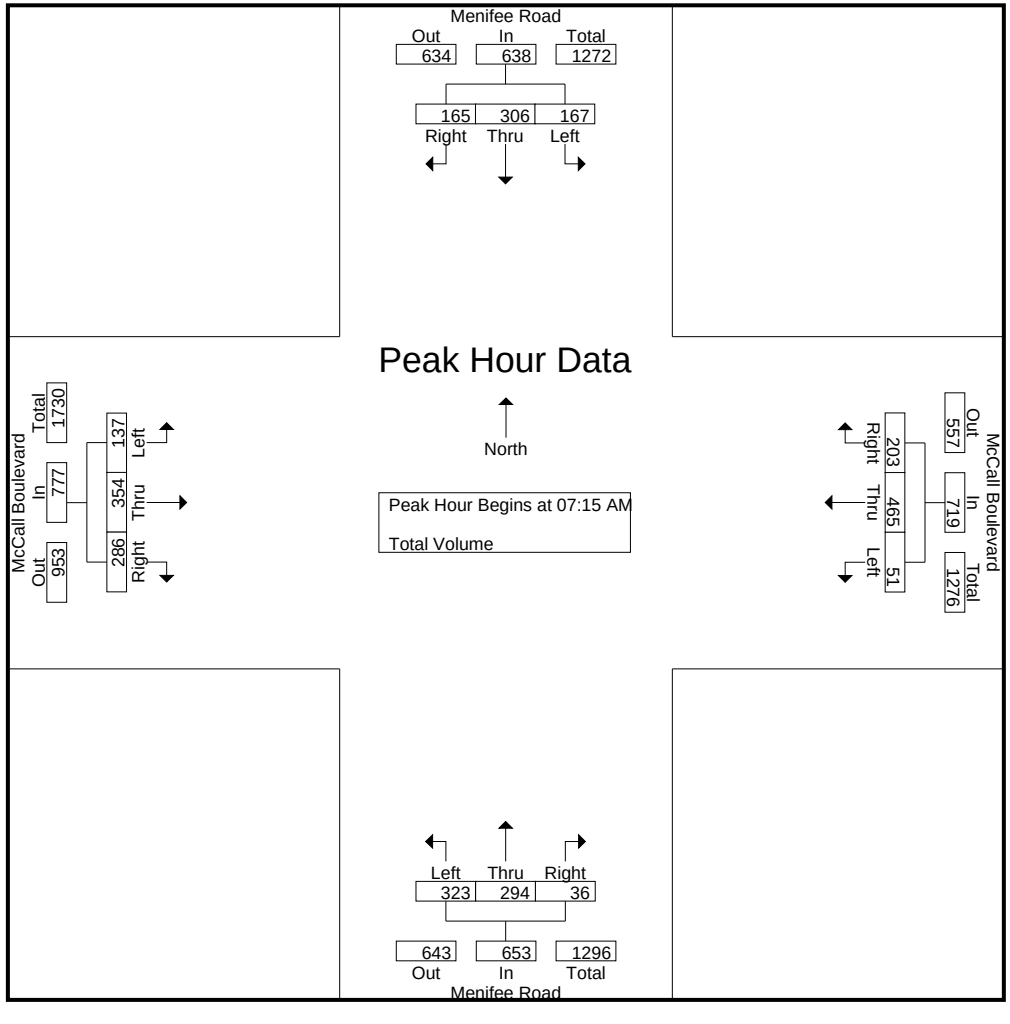
	Menifee Road Southbound					McCall Boulevard Westbound					Menifee Road Northbound					McCall Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	10	38	38	22	86	5	84	21	7	110	50	30	8	5	88	22	39	34	12	95	46	379	425
07:15 AM	22	45	31	18	98	8	98	21	6	127	64	51	8	5	123	25	49	96	27	170	56	518	574
07:30 AM	52	97	46	19	195	12	99	43	29	154	94	76	13	4	183	43	98	92	20	233	72	765	837
07:45 AM	57	96	53	14	206	19	143	69	40	231	89	89	8	3	186	30	139	65	4	234	61	857	918
Total	141	276	168	73	585	44	424	154	82	622	297	246	37	17	580	120	325	287	63	732	235	2519	2754
08:00 AM	36	68	35	14	139	12	125	70	30	207	76	78	7	2	161	39	68	33	11	140	57	647	704
08:15 AM	12	51	32	13	95	9	95	28	20	132	57	53	10	7	120	40	65	59	17	164	57	511	568
08:30 AM	11	48	34	14	93	8	79	8	2	95	37	32	5	3	74	20	35	23	7	78	26	340	366
08:45 AM	5	54	23	4	82	6	49	12	6	67	34	55	7	4	96	25	31	23	9	79	23	324	347
Total	64	221	124	45	409	35	348	118	58	501	204	218	29	16	451	124	199	138	44	461	163	1822	1985
Grand Total	205	497	292	118	994	79	772	272	140	1123	501	464	66	33	1031	244	524	425	107	1193	398	4341	4739
Apprch %	20.6	50	29.4			7	68.7	24.2			48.6	45	6.4			20.5	43.9	35.6					
Total %	4.7	11.4	6.7		22.9	1.8	17.8	6.3		25.9	11.5	10.7	1.5		23.8	5.6	12.1	9.8		27.5	8.4	91.6	

	Menifee Road Southbound				McCall Boulevard Westbound				Menifee Road Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	22	45	31	98	8	98	21	127	64	51	8	123	25	49	**96**	170	518
07:30 AM	52	**97**	46	195	12	99	43	154	**94**	76	**13**	183	**43**	98	92	233	765
07:45 AM	**57**	96	**53**	**206**	**19**	**143**	69	**231**	89	**89**	8	**186**	30	**139**	65	**234**	**857**
08:00 AM	36	68	35	139	12	125	**70**	207	76	78	7	161	39	68	33	140	647
Total Volume	167	306	165	638	51	465	203	719	323	294	36	653	137	354	286	777	2787
% App. Total	26.2	48	25.9		7.1	64.7	28.2		49.5	45	5.5		17.6	45.6	36.8		
PHF	.732	.789	.778	.774	.671	.813	.725	.778	.859	.826	.692	.878	.797	.637	.745	.830	.813

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	Menifee Road Southbound				McCall Boulevard Westbound				Menifee Road Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:15 AM				07:30 AM				07:15 AM				07:15 AM				
+0 mins.	22	45	31	98	12	99	43	154	64	51	8	123	25	49	**96**	170	
+15 mins.	52	**97**	46	195	**19**	**143**	69	**231**	**94**	76	**13**	183	**43**	98	92	233	
+30 mins.	**57**	96	**53**	**206**	12	125	**70**	207	89	**89**	8	**186**	30	**139**	65	**234**	
+45 mins.	36	68	35	139	9	95	28	132	76	78	7	161	39	68	33	140	
Total Volume	167	306	165	638	52	462	210	724	323	294	36	653	137	354	286	777	
% App. Total	26.2	48	25.9		7.2	63.8	29		49.5	45	5.5		17.6	45.6	36.8		
PHF	.732	.789	.778	.774	.684	.808	.750	.784	.859	.826	.692	.878	.797	.637	.745	.830	

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City of Menifee
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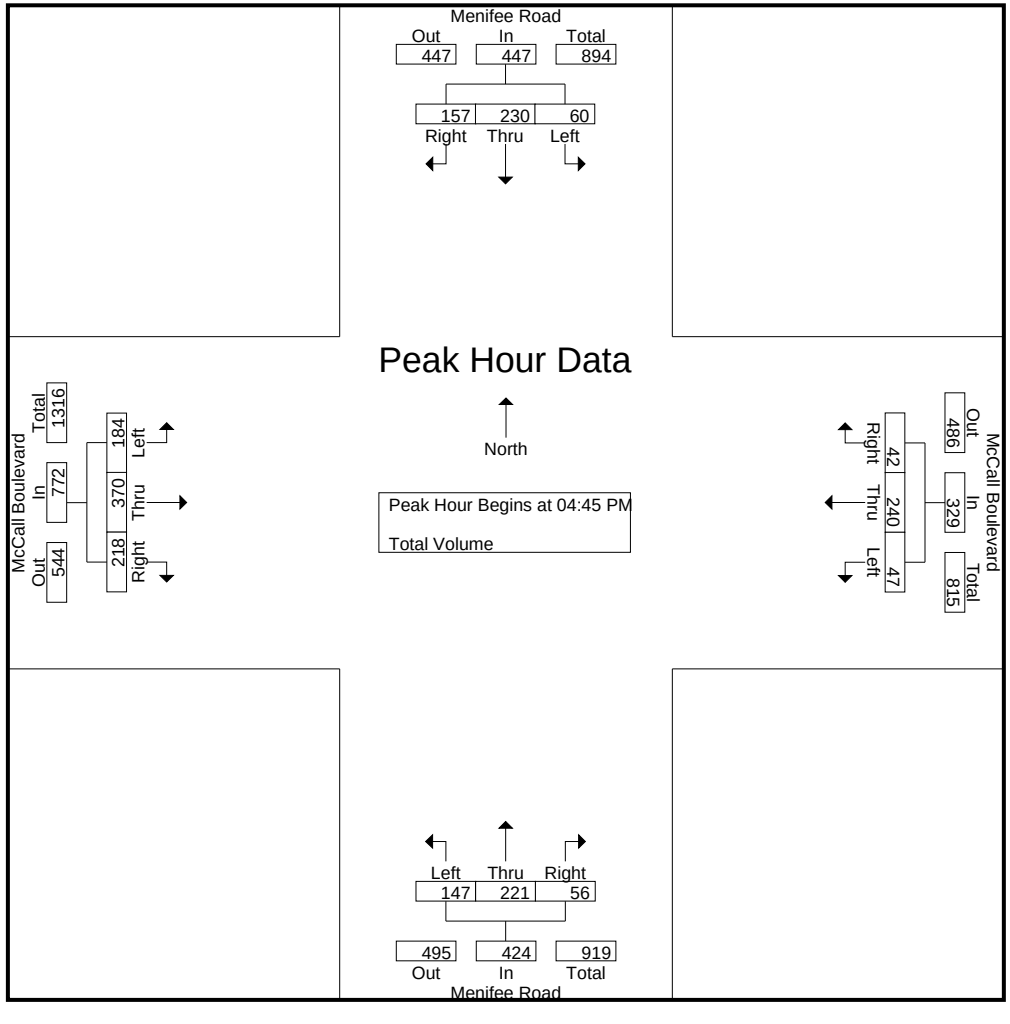
	Menifee Road Southbound					McCall Boulevard Westbound					Menifee Road Northbound					McCall Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	15	53	43	22	111	13	54	12	6	79	38	62	8	3	108	35	69	43	13	147	44	445	489
04:15 PM	18	60	31	12	109	5	53	12	8	70	25	59	7	5	91	37	93	44	14	174	39	444	483
04:30 PM	21	61	43	28	125	11	53	11	7	75	30	46	14	7	90	43	71	51	15	165	57	455	512
04:45 PM	8	54	32	16	94	9	50	11	5	70	27	63	16	7	106	38	102	62	9	202	37	472	509
Total	62	228	149	78	439	38	210	46	26	294	120	230	45	22	395	153	335	200	51	688	177	1816	1993
05:00 PM	16	59	41	24	116	13	70	9	4	92	33	51	14	13	98	50	84	59	5	193	46	499	545
05:15 PM	18	59	38	24	115	9	60	10	6	79	44	53	11	9	108	44	83	41	10	168	49	470	519
05:30 PM	18	58	46	30	122	16	60	12	7	88	43	54	15	3	112	52	101	56	14	209	54	531	585
05:45 PM	11	52	28	15	91	11	46	5	2	62	24	46	10	7	80	39	98	43	6	180	30	413	443
Total	63	228	153	93	444	49	236	36	19	321	144	204	50	32	398	185	366	199	35	750	179	1913	2092
Grand Total	125	456	302	171	883	87	446	82	45	615	264	434	95	54	793	338	701	399	86	1438	356	3729	4085
Apprch %	14.2	51.6	34.2			14.1	72.5	13.3			33.3	54.7	12			23.5	48.7	27.7					
Total %	3.4	12.2	8.1		23.7	2.3	12	2.2		16.5	7.1	11.6	2.5		21.3	9.1	18.8	10.7		38.6	8.7	91.3	

	Menifee Road Southbound				McCall Boulevard Westbound				Menifee Road Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	8	54	32	94	9	50	11	70	27	**63**	**16**	106	38	**102**	**62**	202	472
05:00 PM	16	**59**	41	116	13	**70**	9	**92**	33	51	14	98	50	84	59	193	499
05:15 PM	**18**	59	38	115	9	60	10	79	**44**	53	11	108	44	83	41	168	470
05:30 PM	18	58	**46**	**122**	**16**	60	**12**	88	43	54	15	**112**	**52**	101	56	**209**	**531**
Total Volume	60	230	157	447	47	240	42	329	147	221	56	424	184	370	218	772	1972
% App. Total	13.4	51.5	35.1		14.3	72.9	12.8		34.7	52.1	13.2		23.8	47.9	28.2		
PHF	.833	.975	.853	.916	.734	.857	.875	.894	.835	.877	.875	.946	.885	.907	.879	.923	.928

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	Menifee Road Southbound				McCall Boulevard Westbound				Menifee Road Northbound				McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:30 PM				04:45 PM				04:45 PM				04:45 PM				
+0 mins.	**21**	**61**	**43**	**125**	9	50	11	70	27	**63**	**16**	106	38	**102**	**62**	202	
+15 mins.	8	54	32	94	13	**70**	9	**92**	33	51	14	98	50	84	59	193	
+30 mins.	16	59	41	116	9	60	10	79	**44**	53	11	108	44	83	41	168	
+45 mins.	18	59	38	115	**16**	60	**12**	88	43	54	15	**112**	**52**	101	56	**209**	
Total Volume	63	233	154	450	47	240	42	329	147	221	56	424	184	370	218	772	
% App. Total	14	51.8	34.2		14.3	72.9	12.8		34.7	52.1	13.2		23.8	47.9	28.2		
PHF	.750	.955	.895	.900	.734	.857	.875	.894	.835	.877	.875	.946	.885	.907	.879	.923	

Location: Menifee
N/S: Menifee Road
E/W: McCall Boulevard

Date: 9/27/2022
Day: Tuesday

PEDESTRIANS

	North Leg Menifee Road	East Leg McCall Boulevard	South Leg Menifee Road	West Leg McCall Boulevard	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	1	0	0	1
7:15 AM	0	0	0	0	0
7:30 AM	0	1	0	0	1
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	2	0	0	2

	North Leg Menifee Road	East Leg McCall Boulevard	South Leg Menifee Road	West Leg McCall Boulevard	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	1	0	1
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	1	0	1

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
951-268-6268

Location: Menifee
N/S: Menifee Road
E/W: McCall Boulevard

Date: 9/27/2022
Day: Tuesday

BICYCLES

	Southbound Menifee Road			Westbound McCall Boulevard			Northbound Menifee Road			Eastbound McCall Boulevard			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	1	0	0	0	0	0	1	0	0	0	0	2
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	1	0	0	0	1	0	1	0	0	0	0	3

	Southbound Menifee Road			Westbound McCall Boulevard			Northbound Menifee Road			Eastbound McCall Boulevard			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	1	0	0	0	0	1

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City of Menifee
Heritage Lakes Drive
W/ Menifee Road
24 Hour Directional Volume Count

MEN005
Site Code: 051-22850

Start Time	9/28/22 Wed	Eastbound Morning	Eastbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Westbound Morning	Westbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		1	**14**			1	**17**				
12:15		0	**52**			0	**10**				
12:30		0	**6**			3	**10**				
12:45		0	**7**	1	79	0	**7**	4	44	5	123
01:00		0	6			0	8				
01:15		0	2			0	3				
01:30		0	0			0	4				
01:45		0	3	0	11	0	3	0	18	0	29
02:00		0	3			1	2				
02:15		0	6			0	3				
02:30		0	4			0	6				
02:45		0	7	0	20	0	7	1	18	1	38
03:00		0	3			0	0				
03:15		0	3			0	7				
03:30		0	3			1	5				
03:45		0	4	0	13	0	3	1	15	1	28
04:00		0	3			1	6				
04:15		0	1			0	8				
04:30		1	4			0	5				
04:45		0	3	1	11	0	4	1	23	2	34
05:00		0	5			0	5				
05:15		0	3			0	4				
05:30		0	4			0	7				
05:45		1	7	1	19	2	5	2	21	3	40
06:00		3	0			4	5				
06:15		7	6			6	2				
06:30		3	2			2	5				
06:45		3	2	16	10	6	5	18	17	34	27
07:00		6	6			**6**	8				
07:15		**11**	2			**18**	2				
07:30		**26**	0			**22**	3				
07:45		**27**	2	70	10	**23**	3	69	16	139	26
08:00		**9**	4			5	5				
08:15		4	3			4	4				
08:30		9	1			4	1				
08:45		0	1	22	9	3	2	16	12	38	21
09:00		1	0			3	4				
09:15		3	0			7	1				
09:30		3	3			7	0				
09:45		4	2	11	5	10	3	27	8	38	13
10:00		1	3			6	2				
10:15		2	1			4	3				
10:30		8	2			6	2				
10:45		3	0	14	6	7	0	23	7	37	13
11:00		5	0			4	2				
11:15		2	0			6	0				
11:30		4	0			13	0				
11:45		6	1	17	1	10	1	33	3	50	4
Total		153	194	153	194	195	202	195	202	348	396
Combined Total		347		347		397		397		744	
AM Peak	-	07:15	-	-	-	07:00	-	-	-	-	-
Vol.	-	73	-	-	-	69	-	-	-	-	-
P.H.F.		0.676				0.750					
PM Peak	-	-	12:00	-	-	-	12:00	-	-	-	-
Vol.	-	-	79	-	-	-	44	-	-	-	-
P.H.F.			0.380				0.647				
Percentage		44.1%	55.9%			49.1%	50.9%				
ADT/AADT		ADT 744		AADT 744							

Counts Unlimited, Inc.

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City of Menifee
Junipero Road
N/ McCall Boulevard
24 Hour Directional Volume Count

MEN003
Site Code: 051-22850

Start Time	9/28/22 Wed	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		3	**44**			2	**48**				
12:15		0	**65**			0	**127**				
12:30		1	**22**			0	**68**				
12:45		0	**8**	4	139	0	**16**	2	259	6	398
01:00		0	12			0	16				
01:15		0	6			0	8				
01:30		0	6			0	6				
01:45		0	10	0	34	0	6	0	36	0	70
02:00		0	8			0	11				
02:15		0	3			0	7				
02:30		0	7			0	21				
02:45		0	4	0	22	0	12	0	51	0	73
03:00		0	5			0	12				
03:15		0	4			0	13				
03:30		0	8			1	9				
03:45		0	4	0	21	0	9	1	43	1	64
04:00		0	3			4	3				
04:15		0	7			1	9				
04:30		1	9			0	12				
04:45		0	7	1	26	0	9	5	33	6	59
05:00		1	12			4	6				
05:15		1	8			1	8				
05:30		0	15			5	12				
05:45		4	5	6	40	3	11	13	37	19	77
06:00		7	8			5	9				
06:15		7	2			7	14				
06:30		13	5			7	1				
06:45		9	5	36	20	4	6	23	30	59	50
07:00		**33**	3			9	5				
07:15		**62**	6			**26**	4				
07:30		**104**	4			**156**	3				
07:45		**46**	3	245	16	**149**	1	340	13	585	29
08:00		15	8			**20**	3				
08:15		11	3			5	6				
08:30		6	3			5	7				
08:45		8	1	40	15	4	3	34	19	74	34
09:00		4	4			2	2				
09:15		3	1			7	2				
09:30		3	5			7	1				
09:45		5	4	15	14	4	2	20	7	35	21
10:00		4	2			10	2				
10:15		4	2			3	1				
10:30		6	3			2	0				
10:45		9	1	23	8	7	0	22	3	45	11
11:00		10	0			8	0				
11:15		17	3			8	1				
11:30		44	4			7	4				
11:45		59	1	130	8	22	0	45	5	175	13
Total		500	363	500	363	505	536	505	536	1005	899
Combined Total		863		863		1041		1041		1904	
AM Peak	-	07:00	-	-	-	07:15	-	-	-	-	-
Vol.	-	245	-	-	-	351	-	-	-	-	-
P.H.F.		0.589				0.563					
PM Peak	-	-	12:00	-	-	-	12:00	-	-	-	-
Vol.	-	-	139	-	-	-	259	-	-	-	-
P.H.F.			0.535				0.510				
Percentage		57.9%	42.1%			48.5%	51.5%				
ADT/AADT		ADT 1,904		AADT 1,904							

Counts Unlimited, Inc.

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City of Menifee
McCall Boulevard
B/ Interstate 215 Northbound Ramps - Encanto Drive
24 Hour Directional Volume Count

MEN001
Site Code: 051-22850

Start Time	9/27/22 Tue	Eastbound Morning	Eastbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Westbound Morning	Westbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		38	213			22	217				
12:15		38	204			15	179				
12:30		30	223			15	216				
12:45		27	223	133	863	19	181	71	793	204	1656
01:00		31	238			6	213				
01:15		18	208			10	206				
01:30		22	240			16	229				
01:45		19	243	90	929	15	221	47	869	137	1798
02:00		9	300			19	249				
02:15		12	282			17	280				
02:30		11	300			17	233				
02:45		11	350	43	1232	20	**257**	73	1019	116	2251
03:00		15	307			28	**326**				
03:15		13	289			35	**307**				
03:30		12	265			42	**288**				
03:45		20	317	60	1178	44	238	149	1159	209	2337
04:00		12	343			63	227				
04:15		20	300			95	218				
04:30		14	**350**			127	247				
04:45		31	**352**	77	1345	109	208	394	900	471	2245
05:00		27	**350**			116	222				
05:15		40	**341**			155	251				
05:30		52	339			189	265				
05:45		68	329	187	1359	181	196	641	934	828	2293
06:00		87	304			192	207				
06:15		105	317			215	174				
06:30		141	247			229	216				
06:45		137	290	470	1158	239	182	875	779	1345	1937
07:00		170	266			258	172				
07:15		**202**	252			276	154				
07:30		**201**	211			**351**	156				
07:45		**219**	183	792	912	**370**	123	1255	605	2047	1517
08:00		**250**	229			**366**	100				
08:15		193	181			**343**	97				
08:30		198	158			276	81				
08:45		172	167	813	735	235	84	1220	362	2033	1097
09:00		154	153			181	71				
09:15		158	120			221	76				
09:30		176	87			226	34				
09:45		167	115	655	475	220	53	848	234	1503	709
10:00		153	93			207	47				
10:15		175	80			238	47				
10:30		162	56			218	32				
10:45		166	70	656	299	196	33	859	159	1515	458
11:00		190	52			213	26				
11:15		200	59			192	17				
11:30		191	45			222	21				
11:45		209	43	790	199	187	21	814	85	1604	284
Total		4766	10684	4766	10684	7246	7898	7246	7898	12012	18582
Combined Total		15450		15450		15144		15144		30594	
AM Peak	-	07:15	-	-	-	07:30	-	-	-	-	-
Vol.	-	872	-	-	-	1430	-	-	-	-	-
P.H.F.		0.872				0.966					
PM Peak	-	-	04:30	-	-	-	02:45	-	-	-	-
Vol.	-	-	1393	-	-	-	1178	-	-	-	-
P.H.F.			0.989				0.903				
Percentage		30.8%	69.2%			47.8%	52.2%				
ADT/AADT		ADT 30,594		AADT 30,594							

Counts Unlimited, Inc.

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City of Menifee
McCall Boulevard
W/ Junipero Road
24 Hour Directional Volume Count

MEN002
Site Code: 051-22850

Start Time	9/27/22 Tue	Eastbound Morning	Eastbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Westbound Morning	Westbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		13	113			12	86				
12:15		16	103			3	104				
12:30		12	96			4	89				
12:45		13	94	54	406	7	102	26	381	80	787
01:00		10	121			5	92				
01:15		12	138			4	124				
01:30		10	175			6	100				
01:45		10	187	42	621	9	142	24	458	66	1079
02:00		4	203			11	137				
02:15		2	176			8	**230**				
02:30		7	147			8	**238**				
02:45		7	173	20	699	9	**233**	36	838	56	1537
03:00		8	231			13	**182**				
03:15		7	216			15	130				
03:30		5	132			24	123				
03:45		6	172	26	751	24	179	76	614	102	1365
04:00		6	162			32	139				
04:15		6	181			48	117				
04:30		10	185			60	140				
04:45		18	**207**	40	735	46	128	186	524	226	1259
05:00		22	**199**			64	145				
05:15		26	**183**			81	153				
05:30		35	**202**			94	160				
05:45		42	190	125	774	111	116	350	574	475	1348
06:00		47	168			118	108				
06:15		65	160			109	109				
06:30		74	151			114	112				
06:45		77	150	263	629	111	91	452	420	715	1049
07:00		108	139			164	97				
07:15		**231**	147			170	73				
07:30		**266**	99			**278**	68				
07:45		**184**	91	789	476	**345**	68	957	306	1746	782
08:00		**143**	104			**277**	49				
08:15		157	91			**180**	44				
08:30		97	75			167	41				
08:45		80	82	477	352	115	42	739	176	1216	528
09:00		91	70			114	60				
09:15		72	64			101	45				
09:30		87	50			112	21				
09:45		91	55	341	239	125	27	452	153	793	392
10:00		78	46			114	20				
10:15		88	34			103	30				
10:30		68	34			111	10				
10:45		92	27	326	141	112	18	440	78	766	219
11:00		88	16			95	14				
11:15		109	31			107	4				
11:30		92	21			103	10				
11:45		111	22	400	90	101	13	406	41	806	131
Total		2903	5913	2903	5913	4144	4563	4144	4563	7047	10476
Combined Total		8816		8816		8707		8707		17523	
AM Peak	-	07:15	-	-	-	07:30	-	-	-	-	-
Vol.	-	824	-	-	-	1080	-	-	-	-	-
P.H.F.		0.774				0.783					
PM Peak	-	-	04:45	-	-	-	02:15	-	-	-	-
Vol.	-	-	791	-	-	-	883	-	-	-	-
P.H.F.			0.955				0.928				
Percentage		32.9%	67.1%			47.6%	52.4%				
ADT/AADT		ADT 17,523		AADT 17,523							

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City of Menifee
Menifee Road
S/ Heritage Lakes Drive
24 Hour Directional Volume Count

MEN004
Site Code: 051-22850

Start Time	9/27/22 Tue	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		12	83			10	58				
12:15		12	67			8	83				
12:30		8	93			3	69				
12:45		10	63	42	306	6	78	27	288	69	594
01:00		5	99			9	57				
01:15		6	98			4	105				
01:30		4	82			5	77				
01:45		3	92	18	371	5	95	23	334	41	705
02:00		2	99			6	**134**				
02:15		3	102			6	**186**				
02:30		4	**132**			4	**160**				
02:45		5	**245**	14	578	3	**140**	19	620	33	1198
03:00		8	**155**			5	114				
03:15		5	**148**			4	116				
03:30		5	113			5	136				
03:45		11	121	29	537	11	135	25	501	54	1038
04:00		16	111			11	110				
04:15		13	113			12	113				
04:30		20	99			21	127				
04:45		20	115	69	438	25	95	69	445	138	883
05:00		35	117			14	122				
05:15		25	109			32	119				
05:30		31	119			32	123				
05:45		42	102	133	447	50	100	128	464	261	911
06:00		60	108			60	109				
06:15		63	97			74	96				
06:30		61	71			83	95				
06:45		83	93	267	369	88	84	305	384	572	753
07:00		71	89			84	68				
07:15		95	94			**105**	50				
07:30		**159**	65			**215**	41				
07:45		**189**	53	514	301	**219**	45	623	204	1137	505
08:00		**202**	49			**136**	42				
08:15		**121**	64			86	43				
08:30		73	40			108	42				
08:45		105	43	501	196	92	39	422	166	923	362
09:00		85	54			80	49				
09:15		49	57			67	25				
09:30		75	33			91	23				
09:45		81	39	290	183	105	30	343	127	633	310
10:00		66	33			85	14				
10:15		61	22			80	23				
10:30		82	18			83	15				
10:45		80	17	289	90	77	17	325	69	614	159
11:00		64	17			91	15				
11:15		90	16			77	5				
11:30		91	16			63	8				
11:45		83	11	328	60	89	5	320	33	648	93
Total		2494	3876	2494	3876	2629	3635	2629	3635	5123	7511
Combined Total		6370		6370		6264		6264		12634	
AM Peak	-	07:30	-	-	-	07:15	-	-	-	-	-
Vol.	-	671	-	-	-	675	-	-	-	-	-
P.H.F.		0.830				0.771					
PM Peak	-	-	02:30	-	-	-	02:00	-	-	-	-
Vol.	-	-	680	-	-	-	620	-	-	-	-
P.H.F.			0.694				0.833				
Percentage		39.2%	60.8%			42.0%	58.0%				
ADT/AADT		ADT 12,634		AADT 12,634							

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APPENDIX 3.2: EXISTING (2022) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

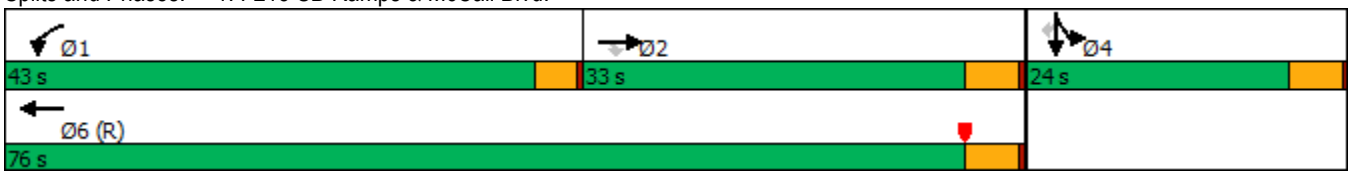
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Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	667	396	485	777	1	245
Future Volume (vph)	667	396	485	777	1	245
Turn Type	NA	Perm	Prot	NA	NA	Perm
Protected Phases	2		1	6	4	
Permitted Phases		2				4
Detector Phase	2	2	1	6	4	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.0	22.0	9.0	20.0	20.0	20.0
Total Split (s)	33.0	33.0	43.0	76.0	24.0	24.0
Total Split (%)	33.0%	33.0%	43.0%	76.0%	24.0%	24.0%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	3.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	None	None	None	C-Max	Max	Max

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 61 (61%), Referenced to phase 6:WBT, Start of Yellow
Natural Cycle: 65
Control Type: Actuated-Coordinated

Splits and Phases: 1: I-215 SB Ramps & McCall Blvd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	667	396	485	777	0	0	0	0	197	1	245
Future Volume (veh/h)	0	667	396	485	777	0	0	0	0	197	1	245
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1841	1885	1870	1856	0				1796	1900	1856
Adj Flow Rate, veh/h	0	688	0	500	801	0				203	1	96
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	4	1	2	3	0				7	0	3
Cap, veh/h	0	1340		529	2521	0				351	2	307
Arrive On Green	0.00	0.38	0.00	0.39	0.95	0.00				0.19	0.19	0.19
Sat Flow, veh/h	0	3589	1598	1781	3618	0				1801	9	1572
Grp Volume(v), veh/h	0	688	0	500	801	0				204	0	96
Grp Sat Flow(s),veh/h/ln	0	1749	1598	1781	1763	0				1810	0	1572
Q Serve(g_s), s	0.0	15.1	0.0	27.1	1.6	0.0				10.2	0.0	5.2
Cycle Q Clear(g_c), s	0.0	15.1	0.0	27.1	1.6	0.0				10.2	0.0	5.2
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1340		529	2521	0				353	0	307
V/C Ratio(X)	0.00	0.51		0.95	0.32	0.00				0.58	0.00	0.31
Avail Cap(c_a), veh/h	0	1340		704	2521	0				353	0	307
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.69	0.69	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	23.7	0.0	29.5	0.7	0.0				36.5	0.0	34.5
Incr Delay (d2), s/veh	0.0	0.1	0.0	12.5	0.2	0.0				6.7	0.0	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.8	0.0	11.5	0.4	0.0				5.0	0.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	23.8	0.0	42.0	1.0	0.0				43.3	0.0	37.2
LnGrp LOS	A	C		D	A	A				D	A	D
Approach Vol, veh/h		688			1301						300	
Approach Delay, s/veh		23.8			16.7						41.3	
Approach LOS		C			B						D	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	33.2	42.8		24.0		76.0
Change Period (Y+Rc), s	3.5	4.5		4.5		4.5
Max Green Setting (Gmax), s	39.5	28.5		19.5		71.5
Max Q Clear Time (g_c+I1), s	29.1	17.1		12.2		3.6
Green Ext Time (p_c), s	0.6	2.2		0.5		3.6

Intersection Summary		
HCM 6th Ctrl Delay		22.1
HCM 6th LOS		C

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

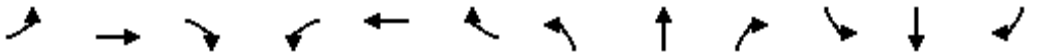
Lane Group	EBL	EBT	WBT	WBR	NBT	NBR
Lane Configurations						
Traffic Volume (vph)	234	630	1063	385	0	227
Future Volume (vph)	234	630	1063	385	0	227
Turn Type	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	6		8	
Permitted Phases				6		8
Detector Phase	5	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	8.5	22.0	20.0	20.0	20.0	20.0
Total Split (s)	27.9	75.0	47.1	47.1	25.0	25.0
Total Split (%)	27.9%	75.0%	47.1%	47.1%	25.0%	25.0%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	Max	Max

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection
Natural Cycle: 65
Control Type: Actuated-Coordinated

Splits and Phases: 2: I-215 NB Ramps & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	234	630	0	0	1063	385	199	0	227	0	0	0
Future Volume (veh/h)	234	630	0	0	1063	385	199	0	227	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1811	1841	0	0	1856	1870	1870	1900	1796			
Adj Flow Rate, veh/h	249	670	0	0	1131	0	212	0	102			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	6	4	0	0	3	2	2	0	7			
Cap, veh/h	282	2466	0	0	1787		371	0	312			
Arrive On Green	0.16	0.70	0.00	0.00	0.51	0.00	0.20	0.00	0.20			
Sat Flow, veh/h	1725	3589	0	0	3618	1585	1810	0	1522			
Grp Volume(v), veh/h	249	670	0	0	1131	0	212	0	102			
Grp Sat Flow(s),veh/h/ln	1725	1749	0	0	1763	1585	1810	0	1522			
Q Serve(g_s), s	14.1	7.0	0.0	0.0	23.3	0.0	10.6	0.0	5.7			
Cycle Q Clear(g_c), s	14.1	7.0	0.0	0.0	23.3	0.0	10.6	0.0	5.7			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	282	2466	0	0	1787		371	0	312			
V/C Ratio(X)	0.88	0.27	0.00	0.00	0.63		0.57	0.00	0.33			
Avail Cap(c_a), veh/h	421	2466	0	0	1787		371	0	312			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.81	0.81	0.00	0.00	0.55	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	40.9	5.4	0.0	0.0	17.9	0.0	35.8	0.0	33.9			
Incr Delay (d2), s/veh	8.5	0.2	0.0	0.0	1.0	0.0	6.3	0.0	2.8			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	6.4	2.0	0.0	0.0	8.7	0.0	5.1	0.0	2.3			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.4	5.6	0.0	0.0	18.9	0.0	42.1	0.0	36.6			
LnGrp LOS	D	A	A	A	B		D	A	D			
Approach Vol, veh/h		919			1131			314				
Approach Delay, s/veh		17.5			18.9			40.3				
Approach LOS		B			B			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		75.0			19.8	55.2		25.0				
Change Period (Y+Rc), s		4.5			3.5	4.5		4.5				
Max Green Setting (Gmax), s		70.5			24.4	42.6		20.5				
Max Q Clear Time (g_c+I1), s		9.0			16.1	25.3		12.6				
Green Ext Time (p_c), s		2.9			0.2	4.8		0.9				

Intersection Summary	
HCM 6th Ctrl Delay	21.2
HCM 6th LOS	C

Notes

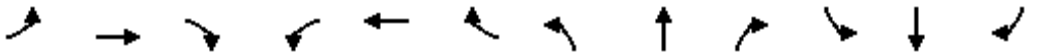
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	125	644	47	1109	164	26	53	24	18
Future Volume (vph)	125	644	47	1109	164	26	53	24	18
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA
Protected Phases	5	2	1	6		8			4
Permitted Phases					8		8	4	
Detector Phase	5	2	1	6	8	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	31.0	9.5	31.0	33.0	33.0	33.0	20.0	20.0
Total Split (s)	18.0	55.4	11.6	49.0	33.0	33.0	33.0	33.0	33.0
Total Split (%)	18.0%	55.4%	11.6%	49.0%	33.0%	33.0%	33.0%	33.0%	33.0%
Yellow Time (s)	3.5	5.0	3.5	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	4.5	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 74.2
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Encanto Dr. & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	644	88	47	1109	27	164	26	53	24	18	175
Future Volume (veh/h)	125	644	88	47	1109	27	164	26	53	24	18	175
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.99	0.99		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	130	671	81	49	1155	28	171	27	22	25	19	140
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	167	1410	170	81	1400	34	326	478	400	440	49	363
Arrive On Green	0.09	0.44	0.44	0.05	0.39	0.39	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	1781	3184	384	1781	3546	86	1227	1870	1566	1342	193	1422
Grp Volume(v), veh/h	130	374	378	49	579	604	171	27	22	25	0	159
Grp Sat Flow(s),veh/h/ln	1781	1777	1791	1781	1777	1855	1227	1870	1566	1342	0	1614
Q Serve(g_s), s	4.6	9.6	9.6	1.7	18.8	18.8	8.6	0.7	0.7	0.9	0.0	5.2
Cycle Q Clear(g_c), s	4.6	9.6	9.6	1.7	18.8	18.8	13.8	0.7	0.7	1.6	0.0	5.2
Prop In Lane	1.00		0.21	1.00		0.05	1.00		1.00	1.00		0.88
Lane Grp Cap(c), veh/h	167	787	793	81	701	732	326	478	400	440	0	413
V/C Ratio(X)	0.78	0.48	0.48	0.61	0.82	0.83	0.53	0.06	0.05	0.06	0.00	0.39
Avail Cap(c_a), veh/h	373	1363	1373	196	1186	1238	526	784	657	659	0	677
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.6	12.7	12.7	30.2	17.5	17.5	25.5	18.1	18.1	18.7	0.0	19.8
Incr Delay (d2), s/veh	3.0	0.2	0.2	2.7	1.0	0.9	0.5	0.0	0.0	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	3.1	3.1	0.7	6.4	6.7	2.4	0.3	0.2	0.3	0.0	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.5	12.8	12.8	32.9	18.5	18.4	26.0	18.1	18.1	18.7	0.0	20.0
LnGrp LOS	C	B	B	C	B	B	C	B	B	B	A	C
Approach Vol, veh/h		882			1232			220			184	
Approach Delay, s/veh		15.6			19.0			24.3			19.8	
Approach LOS		B			B			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.4	34.5		22.5	10.5	31.4		22.5				
Change Period (Y+Rc), s	4.5	6.0		6.0	4.5	6.0		6.0				
Max Green Setting (Gmax), s	7.1	49.4		27.0	13.5	43.0		27.0				
Max Q Clear Time (g_c+I1), s	3.7	11.6		7.2	6.6	20.8		15.8				
Green Ext Time (p_c), s	0.0	2.7		0.6	0.1	4.6		0.3				

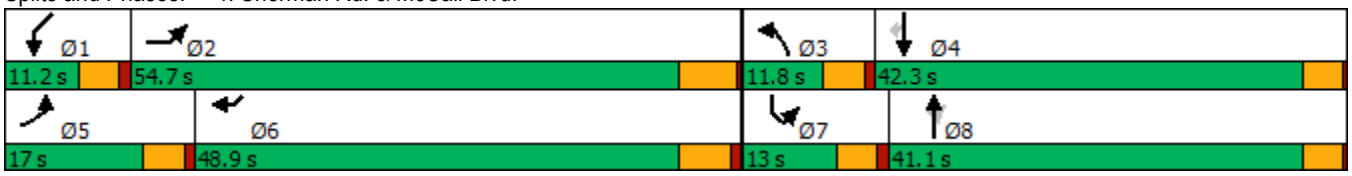
Intersection Summary												
HCM 6th Ctrl Delay			18.3									
HCM 6th LOS			B									

Lane Group	EBL2	EBL	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations										
Traffic Volume (vph)	159	585	83	37	13	101	33	127	32	1077
Future Volume (vph)	159	585	83	37	13	101	33	127	32	1077
Turn Type	Prot	Prot	Prot	NA	Perm	Prot	NA	Perm	Prot	Prot
Protected Phases	5	2	3	8		7	4		1	6
Permitted Phases					8			4		
Detector Phase	5	2	3	8	8	7	4	4	1	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	38.7	9.6	41.1	41.1	9.6	41.1	41.1	9.6	38.8
Total Split (s)	17.0	54.7	11.8	41.1	41.1	13.0	42.3	42.3	11.2	48.9
Total Split (%)	14.2%	45.6%	9.8%	34.3%	34.3%	10.8%	35.3%	35.3%	9.3%	40.8%
Yellow Time (s)	3.6	5.2	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.8
All-Red Time (s)	1.0	0.5	1.0	0.5	0.5	1.0	0.5	0.5	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.7	4.6	4.1	4.1	4.6	4.1	4.1	4.6	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 97.7
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 4: Sherman Rd. & McCall Blvd.



Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR	SWR2
Lane Configurations												
Traffic Volume (veh/h)	159	585	34	83	37	13	101	33	127	32	1077	92
Future Volume (veh/h)	159	585	34	83	37	13	101	33	127	32	1077	92
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00	1.00		0.96	1.00		1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No		No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	171	171	33	89	40	9	109	35	75	34	93	93
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	210	210	90	114	258	209	139	284	240	60	106	106
Arrive On Green	0.12	0.12	0.49	0.06	0.14	0.14	0.08	0.15	0.15	0.03	0.41	0.41
Sat Flow, veh/h	1781	1781	182	1781	1870	1517	1781	1870	1582	1781	258	258
Grp Volume(v), veh/h	171	171	333	89	40	9	109	35	75	34	658	658
Grp Sat Flow(s),veh/h/ln	1781	1781	1838	1781	1870	1517	1781	1870	1582	1781	1824	1824
Q Serve(g_s), s	7.0	7.0	8.4	3.7	1.4	0.4	4.5	1.2	3.2	1.4	24.9	24.9
Cycle Q Clear(g_c), s	7.0	7.0	8.4	3.7	1.4	0.4	4.5	1.2	3.2	1.4	24.9	24.9
Prop In Lane	1.00	1.00	0.10	1.00		1.00	1.00		1.00	1.00	0.14	0.14
Lane Grp Cap(c), veh/h	210	210	910	114	258	209	139	284	240	60	750	750
V/C Ratio(X)	0.81	0.81	0.37	0.78	0.15	0.04	0.78	0.12	0.31	0.56	0.88	0.88
Avail Cap(c_a), veh/h	295	295	1203	171	924	750	200	954	807	157	1050	1050
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.2	32.2	11.7	34.5	28.4	28.0	33.9	27.4	28.3	35.6	20.3	20.3
Incr Delay (d2), s/veh	7.8	7.8	0.2	6.1	0.3	0.1	7.2	0.2	0.7	3.0	6.4	6.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	3.3	2.9	1.8	0.6	0.1	2.2	0.5	1.2	0.6	10.3	10.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.0	40.0	11.9	40.6	28.7	28.1	41.0	27.6	29.0	38.7	26.8	26.8
LnGrp LOS	D	D	B	D	C	C	D	C	C	D	C	C
Approach Vol, veh/h	833	833			138			219		1285		
Approach Delay, s/veh	17.7	17.7			36.3			34.8		27.3		
Approach LOS	B	B			D			C		C		

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.1	42.9	9.4	15.5	13.4	36.6	10.4	14.4
Change Period (Y+Rc), s	4.6	* 5.8	4.6	4.1	4.6	5.8	4.6	4.1
Max Green Setting (Gmax), s	6.6	* 49	7.2	38.2	12.4	43.1	8.4	37.0
Max Q Clear Time (g_c+I1), s	3.4	10.4	5.7	5.2	9.0	26.9	6.5	3.4
Green Ext Time (p_c), s	0.0	1.9	0.0	0.4	0.1	3.9	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	25.2
HCM 6th LOS	C

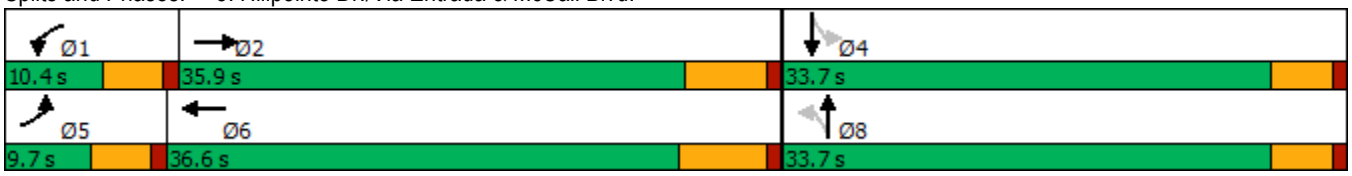
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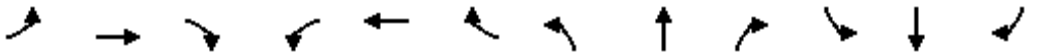
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	13	656	29	1057	100	3	32	15
Future Volume (vph)	13	656	29	1057	100	3	32	15
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases					8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	22.8	9.6	23.2	33.6	33.6	33.6	33.6
Total Split (s)	9.7	35.9	10.4	36.6	33.7	33.7	33.7	33.7
Total Split (%)	12.1%	44.9%	13.0%	45.8%	42.1%	42.1%	42.1%	42.1%
Yellow Time (s)	3.6	4.8	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.6	5.8	4.6	6.2		4.6		4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 46.5
Natural Cycle: 75
Control Type: Actuated-Uncoordinated

Splits and Phases: 5: Hillpointe Dr./Via Entrada & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	656	30	29	1057	23	100	3	37	32	15	44
Future Volume (veh/h)	13	656	30	29	1057	23	100	3	37	32	15	44
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	14	705	28	31	1137	20	108	3	21	34	16	18
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	32	1499	60	64	1601	28	355	21	43	235	109	79
Arrive On Green	0.02	0.43	0.43	0.04	0.45	0.45	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	1781	3484	138	1781	3573	63	1128	116	235	611	595	434
Grp Volume(v), veh/h	14	359	374	31	565	592	132	0	0	68	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1845	1781	1777	1859	1479	0	0	1641	0	0
Q Serve(g_s), s	0.3	6.3	6.3	0.7	11.3	11.3	1.8	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.3	6.3	6.3	0.7	11.3	11.3	3.3	0.0	0.0	1.4	0.0	0.0
Prop In Lane	1.00		0.07	1.00		0.03	0.82		0.16	0.50		0.26
Lane Grp Cap(c), veh/h	32	764	794	64	796	833	419	0	0	423	0	0
V/C Ratio(X)	0.44	0.47	0.47	0.49	0.71	0.71	0.31	0.00	0.00	0.16	0.00	0.00
Avail Cap(c_a), veh/h	207	1221	1268	236	1233	1290	1098	0	0	1160	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	21.3	8.9	8.9	20.7	9.8	9.8	15.9	0.0	0.0	15.2	0.0	0.0
Incr Delay (d2), s/veh	3.5	0.5	0.4	2.1	1.2	1.1	0.4	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.6	1.7	0.3	2.7	2.8	1.1	0.0	0.0	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.8	9.4	9.4	22.8	11.0	10.9	16.3	0.0	0.0	15.4	0.0	0.0
LnGrp LOS	C	A	A	C	B	B	B	A	A	B	A	A
Approach Vol, veh/h		747			1188			132			68	
Approach Delay, s/veh		9.6			11.3			16.3			15.4	
Approach LOS		A			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.2	25.0		12.6	5.4	25.8		12.6				
Change Period (Y+Rc), s	4.6	* 6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	5.8	* 30		29.1	5.1	30.4		29.1				
Max Q Clear Time (g_c+I1), s	2.7	8.3		3.4	2.3	13.3		5.3				
Green Ext Time (p_c), s	0.0	4.1		0.3	0.0	6.4		0.7				

Intersection Summary		
HCM 6th Ctrl Delay		11.1
HCM 6th LOS		B

Notes

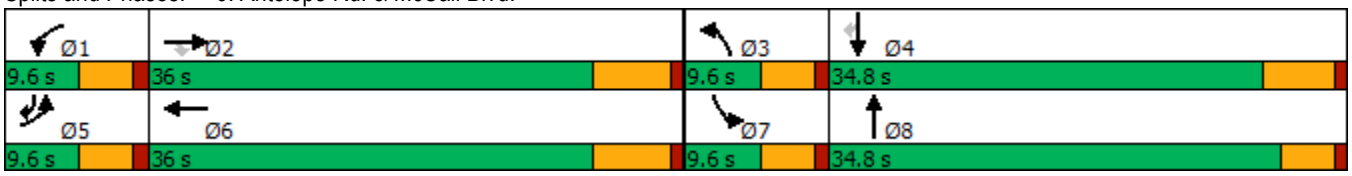
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

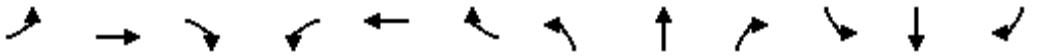
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	56	643	17	49	966	44	14	11	3	96
Future Volume (vph)	56	643	17	49	966	44	14	11	3	96
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA	pm+ov
Protected Phases	5	2		1	6	3	8	7	4	5
Permitted Phases			2							4
Detector Phase	5	2	2	1	6	3	8	7	4	5
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	35.2	35.2	9.6	35.2	9.6	33.6	9.6	34.8	9.6
Total Split (s)	9.6	36.0	36.0	9.6	36.0	9.6	34.8	9.6	34.8	9.6
Total Split (%)	10.7%	40.0%	40.0%	10.7%	40.0%	10.7%	38.7%	10.7%	38.7%	10.7%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6	5.8	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 58.1
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Antelope Rd. & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	643	17	49	966	58	44	14	75	11	3	96
Future Volume (veh/h)	56	643	17	49	966	58	44	14	75	11	3	96
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	62	707	17	54	1062	61	48	15	46	12	3	45
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	100	1460	650	92	1387	80	85	52	160	27	184	244
Arrive On Green	0.06	0.41	0.41	0.05	0.41	0.41	0.05	0.13	0.13	0.02	0.10	0.10
Sat Flow, veh/h	1781	3554	1583	1781	3416	196	1781	399	1224	1781	1870	1582
Grp Volume(v), veh/h	62	707	17	54	552	571	48	0	61	12	3	45
Grp Sat Flow(s),veh/h/ln	1781	1777	1583	1781	1777	1835	1781	0	1624	1781	1870	1582
Q Serve(g_s), s	1.8	7.9	0.3	1.6	14.5	14.5	1.4	0.0	1.8	0.4	0.1	1.3
Cycle Q Clear(g_c), s	1.8	7.9	0.3	1.6	14.5	14.5	1.4	0.0	1.8	0.4	0.1	1.3
Prop In Lane	1.00		1.00	1.00		0.11	1.00		0.75	1.00		1.00
Lane Grp Cap(c), veh/h	100	1460	650	92	722	745	85	0	212	27	184	244
V/C Ratio(X)	0.62	0.48	0.03	0.59	0.77	0.77	0.57	0.00	0.29	0.44	0.02	0.18
Avail Cap(c_a), veh/h	165	1958	872	165	979	1011	165	0	907	165	1003	937
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.0	11.7	9.5	25.1	13.8	13.8	25.2	0.0	21.2	26.4	22.0	19.9
Incr Delay (d2), s/veh	2.3	0.2	0.0	2.2	2.5	2.4	2.2	0.0	0.7	4.1	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	2.3	0.1	0.6	4.6	4.8	0.6	0.0	0.7	0.2	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.3	12.0	9.5	27.3	16.4	16.3	27.4	0.0	22.0	30.5	22.1	20.3
LnGrp LOS	C	B	A	C	B	B	C	A	C	C	C	C
Approach Vol, veh/h		786			1177			109			60	
Approach Delay, s/veh		13.1			16.8			24.4			22.4	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.4	28.4	7.2	11.1	7.6	28.2	5.4	12.9
Change Period (Y+Rc), s	4.6	6.2	4.6	5.8	4.6	6.2	4.6	* 5.8
Max Green Setting (Gmax), s	5.0	29.8	5.0	29.0	5.0	29.8	5.0	* 30
Max Q Clear Time (g_c+I1), s	3.6	9.9	3.4	3.3	3.8	16.5	2.4	3.8
Green Ext Time (p_c), s	0.0	4.2	0.0	0.1	0.0	5.4	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	16.0
HCM 6th LOS	B

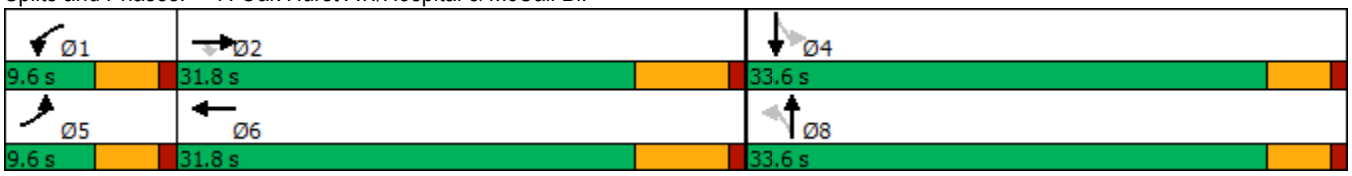
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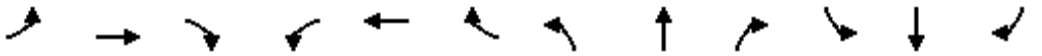
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	2	739	9	27	1019	30	1	15	1
Future Volume (vph)	2	739	9	27	1019	30	1	15	1
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2		1	6		8		4
Permitted Phases			2			8		4	
Detector Phase	5	2	2	1	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	23.2	23.2	9.6	23.2	33.6	33.6	14.6	14.6
Total Split (s)	9.6	31.8	31.8	9.6	31.8	33.6	33.6	33.6	33.6
Total Split (%)	12.8%	42.4%	42.4%	12.8%	42.4%	44.8%	44.8%	44.8%	44.8%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2		4.6		4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 42.7
Natural Cycle: 75
Control Type: Actuated-Uncoordinated

Splits and Phases: 7: Oak Hurst Av./Hospital & McCall Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	739	9	27	1019	6	30	1	34	15	1	0
Future Volume (veh/h)	2	739	9	27	1019	6	30	1	34	15	1	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	830	10	30	1145	7	34	1	18	17	1	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	5	1525	680	64	1674	10	252	24	59	348	15	0
Arrive On Green	0.00	0.43	0.43	0.04	0.46	0.46	0.11	0.11	0.11	0.11	0.11	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3621	22	793	213	517	1378	134	0
Grp Volume(v), veh/h	2	830	10	30	562	590	53	0	0	18	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1866	1523	0	0	1512	0	0
Q Serve(g_s), s	0.0	6.4	0.1	0.6	9.1	9.1	0.4	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	6.4	0.1	0.6	9.1	9.1	1.1	0.0	0.0	0.3	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	0.64		0.34	0.94		0.00
Lane Grp Cap(c), veh/h	5	1525	680	64	821	863	335	0	0	363	0	0
V/C Ratio(X)	0.41	0.54	0.01	0.47	0.68	0.68	0.16	0.00	0.00	0.05	0.00	0.00
Avail Cap(c_a), veh/h	244	2488	1110	244	1244	1307	1338	0	0	1323	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	18.2	7.8	6.0	17.3	7.7	7.7	14.8	0.0	0.0	14.5	0.0	0.0
Incr Delay (d2), s/veh	19.0	0.3	0.0	2.0	1.0	1.0	0.2	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.1	0.0	0.2	1.6	1.7	0.4	0.0	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.2	8.1	6.0	19.3	8.7	8.7	15.0	0.0	0.0	14.6	0.0	0.0
LnGrp LOS	D	A	A	B	A	A	B	A	A	B	A	A
Approach Vol, veh/h		842			1182			53			18	
Approach Delay, s/veh		8.1			9.0			15.0			14.6	
Approach LOS		A			A			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.9	21.9		8.8	4.7	23.1		8.8				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	5.0	25.6		29.0	5.0	25.6		29.0				
Max Q Clear Time (g_c+I1), s	2.6	8.4		2.3	2.0	11.1		3.1				
Green Ext Time (p_c), s	0.0	4.8		0.0	0.0	5.8		0.2				

Intersection Summary		
HCM 6th Ctrl Delay		8.8
HCM 6th LOS		A

Intersection	
Int Delay, s/veh	2.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	48	27	152	40	24	250
Future Vol, veh/h	48	27	152	40	24	250
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	64	64	64	64	64	64
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	75	42	238	63	38	391

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	737	270	0	0	301	0
Stage 1	270	-	-	-	-	-
Stage 2	467	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	386	769	-	-	1260	-
Stage 1	775	-	-	-	-	-
Stage 2	631	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	371	769	-	-	1260	-
Mov Cap-2 Maneuver	371	-	-	-	-	-
Stage 1	775	-	-	-	-	-
Stage 2	606	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.6	0	0.7
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	456	1260	-
HCM Lane V/C Ratio	-	-	0.257	0.03	-
HCM Control Delay (s)	-	-	15.6	7.9	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	1	0.1	-

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	193	616	6	869	77	5	1	167	2
Future Volume (vph)	193	616	6	869	77	5	1	167	2
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2	1	6			8		4
Permitted Phases					6	8		4	
Detector Phase	5	2	1	6	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	23.2	9.6	23.2	23.2	22.6	22.6	33.6	33.6
Total Split (s)	19.0	46.8	9.6	37.4	37.4	33.6	33.6	33.6	33.6
Total Split (%)	21.1%	52.0%	10.7%	41.6%	41.6%	37.3%	37.3%	37.3%	37.3%
Yellow Time (s)	3.6	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	6.2		4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 74.7
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 9: Junipero Rd. & McCall Bl.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	193	616	1	6	869	77	5	1	7	167	2	177
Future Volume (veh/h)	193	616	1	6	869	77	5	1	7	167	2	177
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	238	760	1	7	1073	72	6	1	2	206	2	121
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	289	1026	1	16	1409	628	203	41	40	399	5	279
Arrive On Green	0.16	0.55	0.55	0.01	0.40	0.40	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	1781	1867	2	1781	3554	1585	564	227	226	1414	26	1561
Grp Volume(v), veh/h	238	0	761	7	1073	72	9	0	0	206	0	123
Grp Sat Flow(s),veh/h/ln	1781	0	1870	1781	1777	1585	1017	0	0	1414	0	1586
Q Serve(g_s), s	7.6	0.0	18.1	0.2	15.3	1.7	0.0	0.0	0.0	3.0	0.0	4.1
Cycle Q Clear(g_c), s	7.6	0.0	18.1	0.2	15.3	1.7	4.1	0.0	0.0	7.1	0.0	4.1
Prop In Lane	1.00		0.00	1.00		1.00	0.67		0.22	1.00		0.98
Lane Grp Cap(c), veh/h	289	0	1028	16	1409	628	284	0	0	399	0	284
V/C Ratio(X)	0.82	0.00	0.74	0.43	0.76	0.11	0.03	0.00	0.00	0.52	0.00	0.43
Avail Cap(c_a), veh/h	437	0	1294	152	1889	843	718	0	0	845	0	784
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.8	0.0	10.0	28.9	15.3	11.2	20.0	0.0	0.0	22.5	0.0	21.5
Incr Delay (d2), s/veh	4.5	0.0	1.7	6.4	1.3	0.1	0.0	0.0	0.0	1.0	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	0.0	5.1	0.1	4.9	0.5	0.1	0.0	0.0	2.6	0.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.2	0.0	11.8	35.4	16.6	11.3	20.0	0.0	0.0	23.6	0.0	22.5
LnGrp LOS	C	A	B	D	B	B	C	A	A	C	A	C
Approach Vol, veh/h		999			1152			9			329	
Approach Delay, s/veh		15.7			16.4			20.0			23.2	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.1	38.5		15.1	14.1	29.5		15.1				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	5.0	40.6		29.0	14.4	31.2		29.0				
Max Q Clear Time (g_c+I1), s	2.2	20.1		9.1	9.6	17.3		6.1				
Green Ext Time (p_c), s	0.0	4.7		1.3	0.1	5.9		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			17.0									
HCM 6th LOS			B									

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	55	0	0	62	10	0	0	0	15	0	6
Future Vol, veh/h	3	55	0	0	62	10	0	0	0	15	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	72	0	0	82	13	0	0	0	20	0	8

Major/Minor	Major1			Major2					Minor2		
Conflicting Flow All	95	0	-	-	-	0			169	169	89
Stage 1	-	-	-	-	-	-			89	89	-
Stage 2	-	-	-	-	-	-			80	80	-
Critical Hdwy	4.12	-	-	-	-	-			6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-			5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-			5.42	5.52	-
Follow-up Hdwy	2.218	-	-	-	-	-			3.518	4.018	3.318
Pot Cap-1 Maneuver	1499	-	0	0	-	-			821	724	969
Stage 1	-	-	0	0	-	-			934	821	-
Stage 2	-	-	0	0	-	-			943	828	-
Platoon blocked, %		-			-	-					
Mov Cap-1 Maneuver	1499	-	-	-	-	-			819	0	969
Mov Cap-2 Maneuver	-	-	-	-	-	-			819	0	-
Stage 1	-	-	-	-	-	-			931	0	-
Stage 2	-	-	-	-	-	-			943	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	9.3
HCM LOS			A

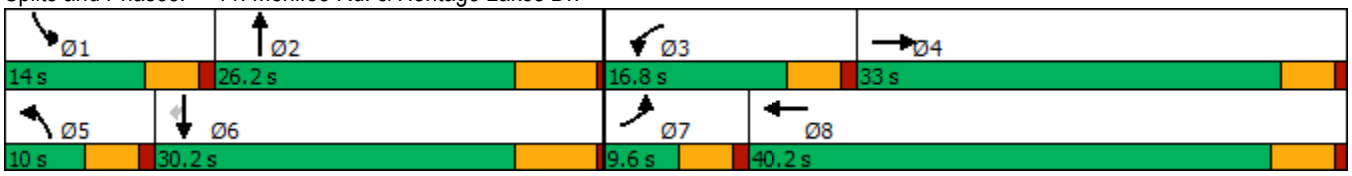
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1499	-	-	-	857
HCM Lane V/C Ratio	0.003	-	-	-	0.032
HCM Control Delay (s)	7.4	0	-	-	9.3
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

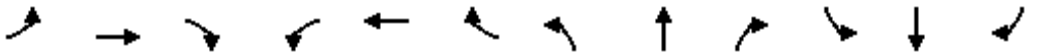
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	17	19	89	23	25	574	95	540	24
Future Volume (vph)	17	19	89	23	25	574	95	540	24
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2	1	6	
Permitted Phases									6
Detector Phase	7	4	3	8	5	2	1	6	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	14.6	9.6	40.2	9.6	26.0	9.6	26.0	26.0
Total Split (s)	9.6	33.0	16.8	40.2	10.0	26.2	14.0	30.2	30.2
Total Split (%)	10.7%	36.7%	18.7%	44.7%	11.1%	29.1%	15.6%	33.6%	33.6%
Yellow Time (s)	3.6	3.6	3.6	4.2	3.6	5.5	3.6	5.5	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	0.5	1.0	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	5.2	4.6	6.0	4.6	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 59.9
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 11: Menifee Rd. & Heritage Lakes Dr.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	19	34	89	23	159	25	574	45	95	540	24
Future Volume (veh/h)	17	19	34	89	23	159	25	574	45	95	540	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	24	16	111	29	98	31	718	41	119	675	24
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	46	146	97	147	73	248	63	1222	69	153	1059	462
Arrive On Green	0.03	0.14	0.14	0.08	0.20	0.20	0.04	0.25	0.25	0.09	0.30	0.30
Sat Flow, veh/h	1781	1040	694	1781	373	1259	1781	4935	280	1781	3554	1549
Grp Volume(v), veh/h	21	0	40	111	0	127	31	494	265	119	675	24
Grp Sat Flow(s),veh/h/ln	1781	0	1734	1781	0	1631	1781	1702	1811	1781	1777	1549
Q Serve(g_s), s	0.5	0.0	0.9	2.8	0.0	3.1	0.8	5.9	5.9	3.0	7.6	0.5
Cycle Q Clear(g_c), s	0.5	0.0	0.9	2.8	0.0	3.1	0.8	5.9	5.9	3.0	7.6	0.5
Prop In Lane	1.00		0.40	1.00		0.77	1.00		0.15	1.00		1.00
Lane Grp Cap(c), veh/h	46	0	243	147	0	321	63	843	449	153	1059	462
V/C Ratio(X)	0.46	0.00	0.16	0.76	0.00	0.40	0.49	0.59	0.59	0.78	0.64	0.05
Avail Cap(c_a), veh/h	194	0	1071	473	0	1242	209	1496	796	364	1871	816
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.1	0.0	17.4	20.6	0.0	16.1	21.8	15.2	15.2	20.6	14.0	11.5
Incr Delay (d2), s/veh	2.7	0.0	0.3	3.0	0.0	0.8	2.2	0.7	1.2	3.2	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.4	1.1	0.0	1.1	0.3	1.7	1.9	1.1	2.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.8	0.0	17.7	23.6	0.0	16.9	23.9	15.9	16.5	23.8	14.6	11.6
LnGrp LOS	C	A	B	C	A	B	C	B	B	C	B	B
Approach Vol, veh/h		61			238			790			818	
Approach Delay, s/veh		20.1			20.0			16.4			15.9	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.5	17.4	8.4	11.6	6.2	19.7	5.8	14.3
Change Period (Y+Rc), s	4.6	6.0	4.6	* 5.2	4.6	6.0	4.6	5.2
Max Green Setting (Gmax), s	9.4	20.2	12.2	* 28	5.4	24.2	5.0	35.0
Max Q Clear Time (g_c+I1), s	5.0	7.9	4.8	2.9	2.8	9.6	2.5	5.1
Green Ext Time (p_c), s	0.0	3.4	0.1	0.2	0.0	3.5	0.0	0.7

Intersection Summary	
HCM 6th Ctrl Delay	16.7
HCM 6th LOS	B

Notes

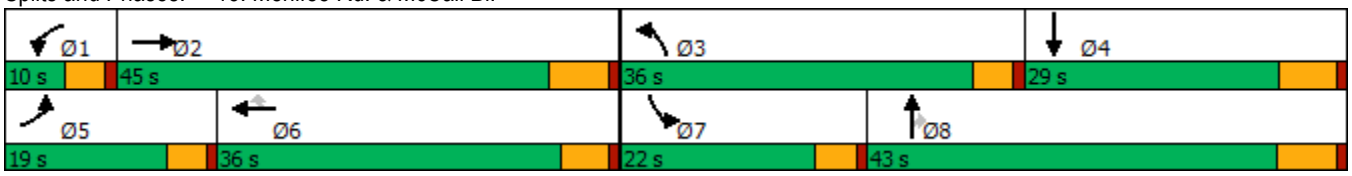
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

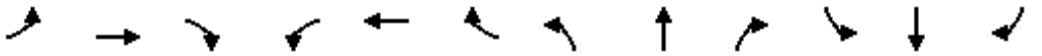
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	137	354	51	465	203	323	304	36	167	331
Future Volume (vph)	137	354	51	465	203	323	304	36	167	331
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	5	2	1	6		3	8		7	4
Permitted Phases					6			8		
Detector Phase	5	2	1	6	6	3	8	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	33.5	9.6	33.5	33.5	9.6	42.5	42.5	9.6	16.5
Total Split (s)	19.0	45.0	10.0	36.0	36.0	36.0	43.0	43.0	22.0	29.0
Total Split (%)	15.8%	37.5%	8.3%	30.0%	30.0%	30.0%	35.8%	35.8%	18.3%	24.2%
Yellow Time (s)	3.6	5.5	3.6	4.4	4.4	3.6	5.5	5.5	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.5	4.6	5.4	5.4	4.6	6.5	6.5	4.6	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 107.4
Natural Cycle: 110
Control Type: Actuated-Uncoordinated

Splits and Phases: 13: Menifee Rd. & McCall Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	137	354	286	51	465	203	323	304	36	167	331	165
Future Volume (veh/h)	137	354	286	51	465	203	323	304	36	167	331	165
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			Yes			Yes	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1859	1859	1859
Adj Flow Rate, veh/h	169	437	276	63	574	121	399	375	27	206	409	124
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	203	591	371	150	752	336	435	1053	463	241	502	151
Arrive On Green	0.11	0.28	0.28	0.04	0.21	0.21	0.24	0.30	0.30	0.14	0.19	0.19
Sat Flow, veh/h	1781	2097	1314	3456	3554	1585	1781	3554	1563	1771	2669	800
Grp Volume(v), veh/h	169	370	343	63	574	121	399	375	27	206	269	264
Grp Sat Flow(s),veh/h/ln	1781	1777	1634	1728	1777	1585	1781	1777	1563	1771	1766	1703
Q Serve(g_s), s	8.5	17.3	17.5	1.6	13.9	6.0	20.0	7.6	1.1	10.4	13.4	13.7
Cycle Q Clear(g_c), s	8.5	17.3	17.5	1.6	13.9	6.0	20.0	7.6	1.1	10.4	13.4	13.7
Prop In Lane	1.00		0.80	1.00		1.00	1.00		1.00	1.00		0.47
Lane Grp Cap(c), veh/h	203	501	461	150	752	336	435	1053	463	241	332	320
V/C Ratio(X)	0.83	0.74	0.74	0.42	0.76	0.36	0.92	0.36	0.06	0.85	0.81	0.82
Avail Cap(c_a), veh/h	279	745	685	203	1185	528	609	1413	622	336	439	423
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.8	29.9	29.9	42.8	34.0	30.9	33.8	25.4	23.1	38.8	35.7	35.8
Incr Delay (d2), s/veh	10.6	2.1	2.4	0.7	1.6	0.7	12.5	0.2	0.1	10.9	8.3	9.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	7.1	6.6	0.7	5.9	2.2	9.3	2.9	0.4	4.9	6.1	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.4	32.0	32.4	43.5	35.7	31.5	46.2	25.6	23.2	49.7	44.0	45.4
LnGrp LOS	D	C	C	D	D	C	D	C	C	D	D	D
Approach Vol, veh/h		882			758			801			739	
Approach Delay, s/veh		35.7			35.6			35.8			46.1	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.6	32.4	27.0	23.8	15.1	25.9	17.1	33.7
Change Period (Y+Rc), s	4.6	6.5	4.6	* 6.5	4.6	* 6.5	4.6	6.5
Max Green Setting (Gmax), s	5.4	38.5	31.4	* 23	14.4	* 31	17.4	36.5
Max Q Clear Time (g_c+I1), s	3.6	19.5	22.0	15.7	10.5	15.9	12.4	9.6
Green Ext Time (p_c), s	0.0	3.8	0.4	1.6	0.1	3.5	0.1	2.2

Intersection Summary	
HCM 6th Ctrl Delay	38.1
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

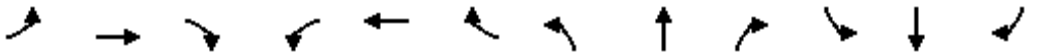
Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	849	369	298	870	0	483
Future Volume (vph)	849	369	298	870	0	483
Turn Type	NA	Perm	Prot	NA	NA	Perm
Protected Phases	2		1	6	4	
Permitted Phases		2				4
Detector Phase	2	2	1	6	4	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.0	22.0	9.0	20.0	20.0	20.0
Total Split (s)	37.0	37.0	26.0	63.0	37.0	37.0
Total Split (%)	37.0%	37.0%	26.0%	63.0%	37.0%	37.0%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	3.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	None	None	None	C-Max	Max	Max

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 61 (61%), Referenced to phase 6:WBT, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 1: I-215 SB Ramps & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	849	369	298	870	0	0	0	0	348	0	483
Future Volume (veh/h)	0	849	369	298	870	0	0	0	0	348	0	483
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1885	1885	0				1870	1900	1885
Adj Flow Rate, veh/h	0	866	0	304	888	0				355	0	325
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98
Percent Heavy Veh, %	0	2	2	1	1	0				2	0	1
Cap, veh/h	0	1293		334	2095	0				588	0	519
Arrive On Green	0.00	0.36	0.00	0.25	0.78	0.00				0.32	0.00	0.32
Sat Flow, veh/h	0	3647	1585	1795	3676	0				1810	0	1598
Grp Volume(v), veh/h	0	866	0	304	888	0				355	0	325
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1795	1791	0				1810	0	1598
Q Serve(g_s), s	0.0	20.5	0.0	16.4	8.2	0.0				16.5	0.0	17.2
Cycle Q Clear(g_c), s	0.0	20.5	0.0	16.4	8.2	0.0				16.5	0.0	17.2
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1293		334	2095	0				588	0	519
V/C Ratio(X)	0.00	0.67		0.91	0.42	0.00				0.60	0.00	0.63
Avail Cap(c_a), veh/h	0	1293		404	2095	0				588	0	519
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.68	0.68	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	26.8	0.0	36.8	5.5	0.0				28.3	0.0	28.6
Incr Delay (d2), s/veh	0.0	1.1	0.0	14.7	0.4	0.0				4.5	0.0	5.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	8.3	0.0	7.7	2.3	0.0				7.4	0.0	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	27.9	0.0	51.5	5.9	0.0				32.9	0.0	34.2
LnGrp LOS	A	C		D	A	A				C	A	C
Approach Vol, veh/h		866			1192						680	
Approach Delay, s/veh		27.9			17.6						33.5	
Approach LOS		C			B						C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	22.1	40.9		37.0		63.0
Change Period (Y+Rc), s	3.5	4.5		4.5		4.5
Max Green Setting (Gmax), s	22.5	32.5		32.5		58.5
Max Q Clear Time (g_c+I1), s	18.4	22.5		19.2		10.2
Green Ext Time (p_c), s	0.2	2.7		1.6		4.0

Intersection Summary		
HCM 6th Ctrl Delay		24.8
HCM 6th LOS		C

Notes

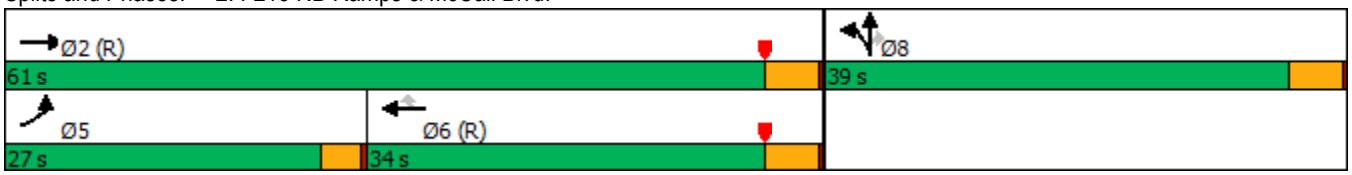
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

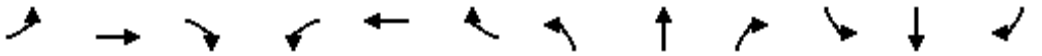
Lane Group	EBL	EBT	WBT	WBR	NBT	NBR
Lane Configurations						
Traffic Volume (vph)	294	903	774	194	0	498
Future Volume (vph)	294	903	774	194	0	498
Turn Type	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	6		8	
Permitted Phases				6		8
Detector Phase	5	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	8.5	22.0	20.0	20.0	20.0	20.0
Total Split (s)	27.0	61.0	34.0	34.0	39.0	39.0
Total Split (%)	27.0%	61.0%	34.0%	34.0%	39.0%	39.0%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	Max	Max

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection
Natural Cycle: 65
Control Type: Actuated-Coordinated

Splits and Phases: 2: I-215 NB Ramps & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	294	903	0	0	774	194	394	0	498	0	0	0
Future Volume (veh/h)	294	903	0	0	774	194	394	0	498	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1900	1856	1885	1900	1870			
Adj Flow Rate, veh/h	303	931	0	0	798	0	406	0	386			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	2	2	0	0	0	3	1	0	2			
Cap, veh/h	336	2008	0	0	1233		624	0	547			
Arrive On Green	0.19	0.56	0.00	0.00	0.34	0.00	0.34	0.00	0.34			
Sat Flow, veh/h	1781	3647	0	0	3705	1572	1810	0	1585			
Grp Volume(v), veh/h	303	931	0	0	798	0	406	0	386			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1805	1572	1810	0	1585			
Q Serve(g_s), s	16.6	15.4	0.0	0.0	18.7	0.0	18.9	0.0	21.1			
Cycle Q Clear(g_c), s	16.6	15.4	0.0	0.0	18.7	0.0	18.9	0.0	21.1			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	336	2008	0	0	1233		624	0	547			
V/C Ratio(X)	0.90	0.46	0.00	0.00	0.65		0.65	0.00	0.71			
Avail Cap(c_a), veh/h	419	2008	0	0	1233		624	0	547			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.65	0.65	0.00	0.00	0.82	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	39.7	12.8	0.0	0.0	27.8	0.0	27.7	0.0	28.4			
Incr Delay (d2), s/veh	12.4	0.5	0.0	0.0	2.2	0.0	5.2	0.0	7.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	8.1	5.5	0.0	0.0	7.9	0.0	8.6	0.0	8.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.1	13.3	0.0	0.0	30.0	0.0	32.8	0.0	35.8			
LnGrp LOS	D	B	A	A	C		C	A	D			
Approach Vol, veh/h		1234			798			792				
Approach Delay, s/veh		22.8			30.0			34.3				
Approach LOS		C			C			C				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		61.0			22.3	38.7		39.0				
Change Period (Y+Rc), s		4.5			3.5	4.5		4.5				
Max Green Setting (Gmax), s		56.5			23.5	29.5		34.5				
Max Q Clear Time (g_c+I1), s		17.4			18.6	20.7		23.1				
Green Ext Time (p_c), s		4.3			0.2	2.3		2.9				

Intersection Summary	
HCM 6th Ctrl Delay	28.1
HCM 6th LOS	C

Notes

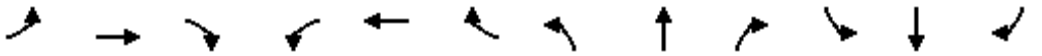
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	147	1026	34	686	148	19	25	32	22
Future Volume (vph)	147	1026	34	686	148	19	25	32	22
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA
Protected Phases	5	2	1	6		8			4
Permitted Phases					8		8	4	
Detector Phase	5	2	1	6	8	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	31.0	9.5	31.0	33.0	33.0	33.0	20.0	20.0
Total Split (s)	21.0	56.0	11.0	46.0	33.0	33.0	33.0	33.0	33.0
Total Split (%)	21.0%	56.0%	11.0%	46.0%	33.0%	33.0%	33.0%	33.0%	33.0%
Yellow Time (s)	3.5	5.0	3.5	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	4.5	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 66.5
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Encanto Dr. & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	147	1026	228	34	686	18	148	19	25	32	22	134
Future Volume (veh/h)	147	1026	228	34	686	18	148	19	25	32	22	134
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	153	1069	201	35	715	18	154	20	17	33	23	66
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	197	1350	253	68	1344	34	331	362	306	391	82	237
Arrive On Green	0.11	0.45	0.45	0.04	0.38	0.38	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1781	2986	560	1781	3542	89	1308	1870	1581	1368	426	1224
Grp Volume(v), veh/h	153	635	635	35	359	374	154	20	17	33	0	89
Grp Sat Flow(s),veh/h/ln	1781	1777	1769	1781	1777	1854	1308	1870	1581	1368	0	1650
Q Serve(g_s), s	4.4	15.9	16.0	1.0	8.2	8.2	5.9	0.5	0.5	1.1	0.0	2.4
Cycle Q Clear(g_c), s	4.4	15.9	16.0	1.0	8.2	8.2	8.3	0.5	0.5	1.5	0.0	2.4
Prop In Lane	1.00		0.32	1.00		0.05	1.00		1.00	1.00		0.74
Lane Grp Cap(c), veh/h	197	803	800	68	674	704	331	362	306	391	0	319
V/C Ratio(X)	0.78	0.79	0.79	0.52	0.53	0.53	0.47	0.06	0.06	0.08	0.00	0.28
Avail Cap(c_a), veh/h	564	1703	1696	222	1363	1422	755	968	818	834	0	854
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.6	12.2	12.2	24.6	12.6	12.6	21.5	17.1	17.1	17.8	0.0	17.9
Incr Delay (d2), s/veh	2.5	0.7	0.7	2.2	0.2	0.2	0.4	0.0	0.0	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	4.5	4.5	0.4	2.5	2.6	1.7	0.2	0.2	0.3	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.0	12.9	12.9	26.8	12.8	12.8	21.9	17.2	17.2	17.8	0.0	18.1
LnGrp LOS	C	B	B	C	B	B	C	B	B	B	A	B
Approach Vol, veh/h		1423			768			191			122	
Approach Delay, s/veh		14.2			13.5			21.0			18.0	
Approach LOS		B			B			C			B	

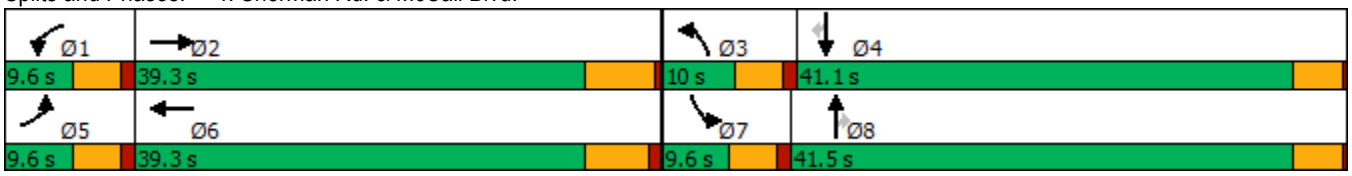
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.5	29.6		16.1	10.3	25.8		16.1				
Change Period (Y+Rc), s	4.5	6.0		6.0	4.5	6.0		6.0				
Max Green Setting (Gmax), s	6.5	50.0		27.0	16.5	40.0		27.0				
Max Q Clear Time (g_c+I1), s	3.0	18.0		4.4	6.4	10.2		10.3				
Green Ext Time (p_c), s	0.0	5.6		0.3	0.1	2.6		0.3				

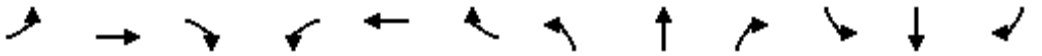
Intersection Summary			
HCM 6th Ctrl Delay		14.7	
HCM 6th LOS		B	

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	25	999	17	650	71	7	17	28	10	12
Future Volume (vph)	25	999	17	650	71	7	17	28	10	12
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2	1	6	3	8		7	4	
Permitted Phases							8			4
Detector Phase	5	2	1	6	3	8	8	7	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	38.7	9.6	38.8	9.6	41.1	41.1	9.6	41.1	41.1
Total Split (s)	9.6	39.3	9.6	39.3	10.0	41.5	41.5	9.6	41.1	41.1
Total Split (%)	9.6%	39.3%	9.6%	39.3%	10.0%	41.5%	41.5%	9.6%	41.1%	41.1%
Yellow Time (s)	3.6	5.2	3.6	4.8	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	0.5	1.0	1.0	1.0	0.5	0.5	1.0	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.7	4.6	5.8	4.6	4.1	4.1	4.6	4.1	4.1
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 52.3
Natural Cycle: 100
Control Type: Actuated-Uncoordinated

Splits and Phases: 4: Sherman Rd. & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	999	62	17	650	28	71	7	17	28	10	12
Future Volume (veh/h)	25	999	62	17	650	28	71	7	17	28	10	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	1074	61	18	699	28	76	8	7	30	11	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	56	1509	86	40	1506	60	119	187	153	61	127	107
Arrive On Green	0.03	0.44	0.44	0.02	0.43	0.43	0.07	0.10	0.10	0.03	0.07	0.07
Sat Flow, veh/h	1781	3418	194	1781	3483	139	1781	1870	1534	1781	1870	1583
Grp Volume(v), veh/h	27	558	577	18	356	371	76	8	7	30	11	1
Grp Sat Flow(s),veh/h/ln	1781	1777	1835	1781	1777	1845	1781	1870	1534	1781	1870	1583
Q Serve(g_s), s	0.7	12.2	12.2	0.5	6.8	6.8	2.0	0.2	0.2	0.8	0.3	0.0
Cycle Q Clear(g_c), s	0.7	12.2	12.2	0.5	6.8	6.8	2.0	0.2	0.2	0.8	0.3	0.0
Prop In Lane	1.00		0.11	1.00		0.08	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	56	785	811	40	768	798	119	187	153	61	127	107
V/C Ratio(X)	0.48	0.71	0.71	0.45	0.46	0.46	0.64	0.04	0.05	0.49	0.09	0.01
Avail Cap(c_a), veh/h	187	1256	1298	187	1252	1301	202	1472	1207	187	1456	1232
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.6	10.8	10.8	22.9	9.6	9.6	21.6	19.3	19.3	22.5	20.8	20.7
Incr Delay (d2), s/veh	2.4	1.2	1.2	3.0	0.4	0.4	2.1	0.1	0.1	2.2	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	3.4	3.5	0.2	1.8	1.9	0.8	0.1	0.1	0.3	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.0	12.0	12.0	25.9	10.0	10.0	23.8	19.4	19.5	24.8	21.1	20.7
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	C	C
Approach Vol, veh/h		1162			745			91			42	
Approach Delay, s/veh		12.3			10.4			23.1			23.7	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.7	26.8	7.8	7.3	6.1	26.3	6.2	8.8
Change Period (Y+Rc), s	4.6	* 5.8	4.6	4.1	4.6	5.8	4.6	4.1
Max Green Setting (Gmax), s	5.0	* 34	5.4	37.0	5.0	33.5	5.0	37.4
Max Q Clear Time (g_c+I1), s	2.5	14.2	4.0	2.3	2.7	8.8	2.8	2.2
Green Ext Time (p_c), s	0.0	6.8	0.0	0.0	0.0	4.2	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	12.3
HCM 6th LOS	B

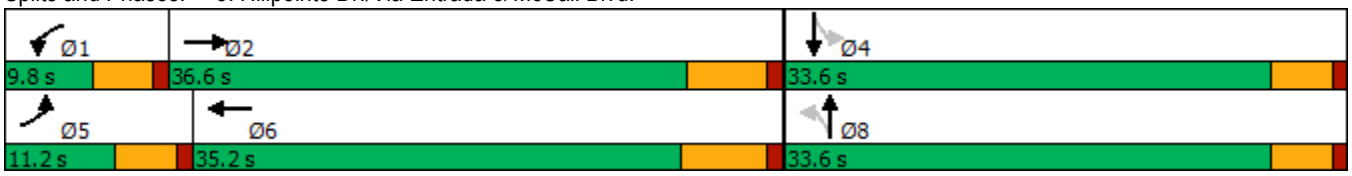
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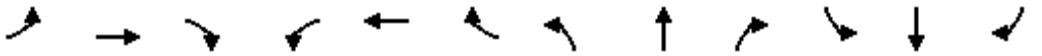
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	47	899	26	644	68	2	14	4
Future Volume (vph)	47	899	26	644	68	2	14	4
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases					8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	22.8	9.6	23.2	33.6	33.6	33.6	33.6
Total Split (s)	11.2	36.6	9.8	35.2	33.6	33.6	33.6	33.6
Total Split (%)	14.0%	45.8%	12.3%	44.0%	42.0%	42.0%	42.0%	42.0%
Yellow Time (s)	3.6	4.8	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.6	5.8	4.6	6.2		4.6		4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 42.7
Natural Cycle: 75
Control Type: Actuated-Uncoordinated

Splits and Phases: 5: Hillpointe Dr./Via Entrada & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	899	115	26	644	11	68	2	19	14	4	30
Future Volume (veh/h)	47	899	115	26	644	11	68	2	19	14	4	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	49	936	110	27	671	10	71	2	12	15	4	6
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	93	1394	164	58	1488	22	334	20	31	255	72	58
Arrive On Green	0.05	0.44	0.44	0.03	0.42	0.42	0.15	0.15	0.15	0.15	0.15	0.15
Sat Flow, veh/h	1781	3203	376	1781	3584	53	1126	132	207	739	474	383
Grp Volume(v), veh/h	49	519	527	27	333	348	85	0	0	25	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1803	1781	1777	1861	1464	0	0	1596	0	0
Q Serve(g_s), s	1.1	9.4	9.4	0.6	5.5	5.5	1.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.1	9.4	9.4	0.6	5.5	5.5	2.0	0.0	0.0	0.5	0.0	0.0
Prop In Lane	1.00		0.21	1.00		0.03	0.84		0.14	0.60		0.24
Lane Grp Cap(c), veh/h	93	773	785	58	738	773	386	0	0	385	0	0
V/C Ratio(X)	0.53	0.67	0.67	0.47	0.45	0.45	0.22	0.00	0.00	0.06	0.00	0.00
Avail Cap(c_a), veh/h	290	1352	1371	229	1273	1333	1195	0	0	1230	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	18.7	9.1	9.1	19.2	8.5	8.5	15.4	0.0	0.0	14.8	0.0	0.0
Incr Delay (d2), s/veh	1.7	1.0	1.0	2.2	0.4	0.4	0.3	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	2.3	2.3	0.2	1.2	1.3	0.6	0.0	0.0	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.4	10.1	10.1	21.4	8.9	8.9	15.7	0.0	0.0	14.8	0.0	0.0
LnGrp LOS	C	B	B	C	A	A	B	A	A	B	A	A
Approach Vol, veh/h		1095			708			85			25	
Approach Delay, s/veh		10.6			9.4			15.7			14.8	
Approach LOS		B			A			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.9	23.8		10.8	6.7	23.0		10.8				
Change Period (Y+Rc), s	4.6	* 6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	5.2	* 31		29.0	6.6	29.0		29.0				
Max Q Clear Time (g_c+I1), s	2.6	11.4		2.5	3.1	7.5		4.0				
Green Ext Time (p_c), s	0.0	6.2		0.1	0.0	3.6		0.4				

Intersection Summary		
HCM 6th Ctrl Delay		10.4
HCM 6th LOS		B

Notes

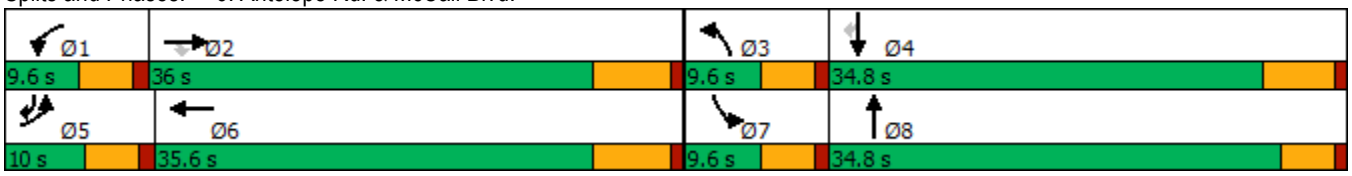
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

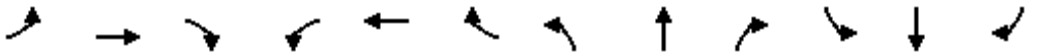
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	74	800	43	21	597	25	6	1	1	56
Future Volume (vph)	74	800	43	21	597	25	6	1	1	56
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA	pm+ov
Protected Phases	5	2		1	6	3	8	7	4	5
Permitted Phases			2							4
Detector Phase	5	2	2	1	6	3	8	7	4	5
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	35.2	35.2	9.6	35.2	9.6	33.6	9.6	34.8	9.6
Total Split (s)	10.0	36.0	36.0	9.6	35.6	9.6	34.8	9.6	34.8	10.0
Total Split (%)	11.1%	40.0%	40.0%	10.7%	39.6%	10.7%	38.7%	10.7%	38.7%	11.1%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6	5.8	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 41.1
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Antelope Rd. & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	800	43	21	597	4	25	6	19	1	1	56
Future Volume (veh/h)	74	800	43	21	597	4	25	6	19	1	1	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	81	879	44	23	656	4	27	7	7	1	1	14
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	131	1367	610	50	1229	7	57	59	59	4	72	177
Arrive On Green	0.07	0.38	0.38	0.03	0.34	0.34	0.03	0.07	0.07	0.00	0.04	0.04
Sat Flow, veh/h	1781	3554	1585	1781	3621	22	1781	852	852	1781	1870	1585
Grp Volume(v), veh/h	81	879	44	23	322	338	27	0	14	1	1	14
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1866	1781	0	1704	1781	1870	1585
Q Serve(g_s), s	1.8	8.3	0.7	0.5	6.0	6.0	0.6	0.0	0.3	0.0	0.0	0.3
Cycle Q Clear(g_c), s	1.8	8.3	0.7	0.5	6.0	6.0	0.6	0.0	0.3	0.0	0.0	0.3
Prop In Lane	1.00		1.00	1.00		0.01	1.00		0.50	1.00		1.00
Lane Grp Cap(c), veh/h	131	1367	610	50	603	634	57	0	118	4	72	177
V/C Ratio(X)	0.62	0.64	0.07	0.46	0.53	0.53	0.47	0.00	0.12	0.23	0.01	0.08
Avail Cap(c_a), veh/h	234	2580	1151	217	1273	1337	217	0	1254	217	1322	1236
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.5	10.3	8.0	19.6	10.9	10.9	19.5	0.0	17.9	20.5	19.0	16.3
Incr Delay (d2), s/veh	1.8	0.5	0.0	2.4	0.7	0.7	2.2	0.0	0.4	9.7	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	2.0	0.2	0.2	1.6	1.7	0.3	0.0	0.1	0.0	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.2	10.8	8.0	22.1	11.7	11.6	21.7	0.0	18.4	30.1	19.1	16.5
LnGrp LOS	C	B	A	C	B	B	C	A	B	C	B	B
Approach Vol, veh/h		1004			683			41			16	
Approach Delay, s/veh		11.5			12.0			20.6			17.5	
Approach LOS		B			B			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.8	22.0	5.9	7.4	7.6	20.1	4.7	8.6
Change Period (Y+Rc), s	4.6	6.2	4.6	5.8	4.6	6.2	4.6	* 5.8
Max Green Setting (Gmax), s	5.0	29.8	5.0	29.0	5.4	29.4	5.0	* 30
Max Q Clear Time (g_c+I1), s	2.5	10.3	2.6	2.3	3.8	8.0	2.0	2.3
Green Ext Time (p_c), s	0.0	5.5	0.0	0.0	0.0	3.4	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	11.9
HCM 6th LOS	B

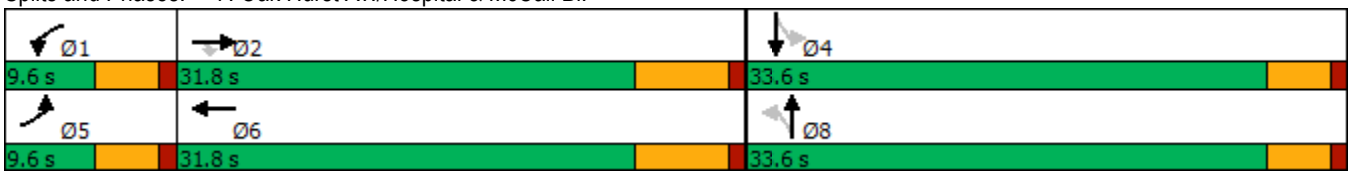
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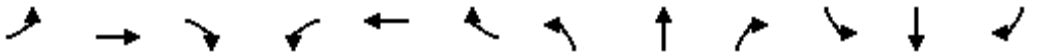
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	2	768	40	17	555	41	0	9	0
Future Volume (vph)	2	768	40	17	555	41	0	9	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2		1	6		8		4
Permitted Phases			2			8		4	
Detector Phase	5	2	2	1	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	23.2	23.2	9.6	23.2	33.6	33.6	14.6	14.6
Total Split (s)	9.6	31.8	31.8	9.6	31.8	33.6	33.6	33.6	33.6
Total Split (%)	12.8%	42.4%	42.4%	12.8%	42.4%	44.8%	44.8%	44.8%	44.8%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2		4.6		4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 36.2
Natural Cycle: 70
Control Type: Actuated-Uncoordinated

Splits and Phases: 7: Oak Hurst Av./Hospital & McCall Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	768	40	17	555	3	41	0	10	9	0	6
Future Volume (veh/h)	2	768	40	17	555	3	41	0	10	9	0	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	853	41	19	617	3	46	0	2	10	0	5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	5	1429	638	43	1537	7	358	5	6	262	31	56
Arrive On Green	0.00	0.40	0.40	0.02	0.42	0.42	0.11	0.00	0.11	0.11	0.00	0.11
Sat Flow, veh/h	1781	3554	1585	1781	3626	18	1342	43	60	749	283	516
Grp Volume(v), veh/h	2	853	41	19	302	318	48	0	0	15	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1867	1445	0	0	1549	0	0
Q Serve(g_s), s	0.0	6.2	0.5	0.3	3.9	3.9	0.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	6.2	0.5	0.3	3.9	3.9	1.0	0.0	0.0	0.3	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	0.96		0.04	0.67		0.33
Lane Grp Cap(c), veh/h	5	1429	638	43	753	791	369	0	0	348	0	0
V/C Ratio(X)	0.37	0.60	0.06	0.44	0.40	0.40	0.13	0.00	0.00	0.04	0.00	0.00
Avail Cap(c_a), veh/h	269	2751	1227	269	1376	1446	1459	0	0	1477	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	16.5	7.8	6.1	15.9	6.6	6.6	13.6	0.0	0.0	13.3	0.0	0.0
Incr Delay (d2), s/veh	15.0	0.4	0.0	2.6	0.3	0.3	0.2	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.0	0.1	0.1	0.6	0.6	0.3	0.0	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.5	8.2	6.1	18.5	7.0	6.9	13.7	0.0	0.0	13.3	0.0	0.0
LnGrp LOS	C	A	A	B	A	A	B	A	A	B	A	A
Approach Vol, veh/h		896			639			48			15	
Approach Delay, s/veh		8.1			7.3			13.7			13.3	
Approach LOS		A			A			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.4	19.5		8.2	4.7	20.2		8.2				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	5.0	25.6		29.0	5.0	25.6		29.0				
Max Q Clear Time (g_c+I1), s	2.3	8.2		2.3	2.0	5.9		3.0				
Green Ext Time (p_c), s	0.0	5.1		0.0	0.0	3.1		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		8.0	
HCM 6th LOS		A	

Intersection	
Int Delay, s/veh	3.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	9	10	25	1	7	17
Future Vol, veh/h	9	10	25	1	7	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	13	33	1	9	23

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	75	34	0	0	34	0
Stage 1	34	-	-	-	-	-
Stage 2	41	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	928	1039	-	-	1578	-
Stage 1	988	-	-	-	-	-
Stage 2	981	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	922	1039	-	-	1578	-
Mov Cap-2 Maneuver	922	-	-	-	-	-
Stage 1	988	-	-	-	-	-
Stage 2	975	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	2.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	980	1578	-
HCM Lane V/C Ratio	-	-	0.026	0.006	-
HCM Control Delay (s)	-	-	8.8	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

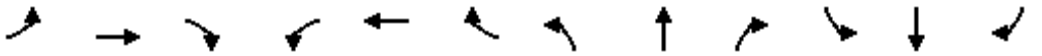
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	29	758	3	557	8	3	0	5	0
Future Volume (vph)	29	758	3	557	8	3	0	5	0
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2	1	6			8		4
Permitted Phases					6	8		4	
Detector Phase	5	2	1	6	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	23.2	9.6	23.2	23.2	22.6	22.6	33.6	33.6
Total Split (s)	10.4	46.8	9.6	46.0	46.0	33.6	33.6	33.6	33.6
Total Split (%)	11.6%	52.0%	10.7%	51.1%	51.1%	37.3%	37.3%	37.3%	37.3%
Yellow Time (s)	3.6	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	6.2		4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 50.4
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 9: Junipero Rd. & McCall Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	758	3	3	557	8	3	0	0	5	0	31
Future Volume (veh/h)	29	758	3	3	557	8	3	0	0	5	0	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	31	806	3	3	593	8	3	0	0	5	0	9
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	66	1018	4	7	1826	814	240	0	0	251	0	63
Arrive On Green	0.04	0.55	0.55	0.00	0.51	0.51	0.04	0.00	0.00	0.04	0.00	0.04
Sat Flow, veh/h	1781	1862	7	1781	3554	1585	1205	0	0	1418	0	1583
Grp Volume(v), veh/h	31	0	809	3	593	8	3	0	0	5	0	9
Grp Sat Flow(s),veh/h/ln	1781	0	1869	1781	1777	1585	1205	0	0	1418	0	1583
Q Serve(g_s), s	0.6	0.0	13.0	0.1	3.7	0.1	0.1	0.0	0.0	0.0	0.0	0.2
Cycle Q Clear(g_c), s	0.6	0.0	13.0	0.1	3.7	0.1	0.3	0.0	0.0	0.1	0.0	0.2
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	66	0	1022	7	1826	814	240	0	0	251	0	63
V/C Ratio(X)	0.47	0.00	0.79	0.41	0.32	0.01	0.01	0.00	0.00	0.02	0.00	0.14
Avail Cap(c_a), veh/h	275	0	2017	237	3759	1677	1260	0	0	1287	0	1220
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.8	0.0	6.8	18.7	5.3	4.5	17.6	0.0	0.0	17.4	0.0	17.4
Incr Delay (d2), s/veh	2.0	0.0	1.4	13.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	1.8	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.7	0.0	8.2	31.8	5.4	4.5	17.6	0.0	0.0	17.4	0.0	18.4
LnGrp LOS	B	A	A	C	A	A	B	A	A	B	A	B
Approach Vol, veh/h		840			604			3			14	
Approach Delay, s/veh		8.7			5.6			17.6			18.1	
Approach LOS		A			A			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.8	26.8		6.1	6.0	25.5		6.1				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	5.0	40.6		29.0	5.8	39.8		29.0				
Max Q Clear Time (g_c+I1), s	2.1	15.0		2.2	2.6	5.7		2.3				
Green Ext Time (p_c), s	0.0	5.5		0.0	0.0	3.8		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		7.5	
HCM 6th LOS		A	

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	8	0	0	15	10	6	0	0	5	0	3
Future Vol, veh/h	1	8	0	0	15	10	6	0	0	5	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	53	53	53	53	53	53	53	53	53	53	53	53
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	15	0	0	28	19	11	0	0	9	0	6

Major/Minor	Major1			Major2				Minor2		
Conflicting Flow All	47	0	-	-	-	0		57	57	38
Stage 1	-	-	-	-	-	-		38	38	-
Stage 2	-	-	-	-	-	-		19	19	-
Critical Hdwy	4.12	-	-	-	-	-		6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-		5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-		5.42	5.52	-
Follow-up Hdwy	2.218	-	-	-	-	-		3.518	4.018	3.318
Pot Cap-1 Maneuver	1560	-	0	0	-	-		950	834	1034
Stage 1	-	-	0	0	-	-		984	863	-
Stage 2	-	-	0	0	-	-		1004	880	-
Platoon blocked, %		-			-	-				
Mov Cap-1 Maneuver	1560	-	-	-	-	-		949	0	1034
Mov Cap-2 Maneuver	-	-	-	-	-	-		949	0	-
Stage 1	-	-	-	-	-	-		983	0	-
Stage 2	-	-	-	-	-	-		1004	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	8.7
HCM LOS			A

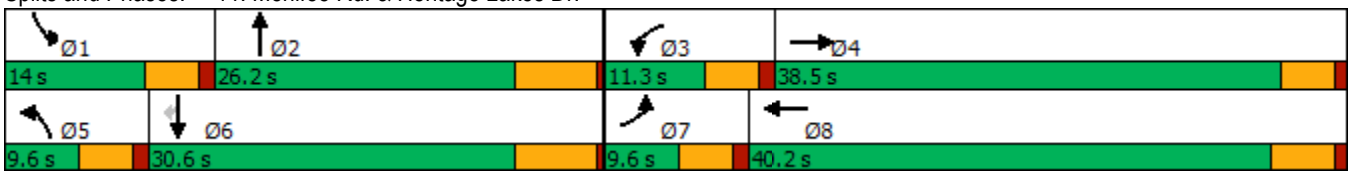
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1560	-	-	-	979
HCM Lane V/C Ratio	0.001	-	-	-	0.015
HCM Control Delay (s)	7.3	0	-	-	8.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

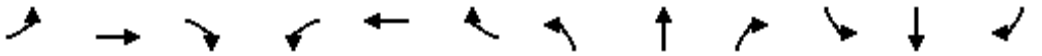
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	6	4	46	4	11	378	94	421	6
Future Volume (vph)	6	4	46	4	11	378	94	421	6
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2	1	6	
Permitted Phases									6
Detector Phase	7	4	3	8	5	2	1	6	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	14.6	9.6	40.2	9.6	26.0	9.6	26.0	26.0
Total Split (s)	9.6	38.5	11.3	40.2	9.6	26.2	14.0	30.6	30.6
Total Split (%)	10.7%	42.8%	12.6%	44.7%	10.7%	29.1%	15.6%	34.0%	34.0%
Yellow Time (s)	3.6	3.6	3.6	4.2	3.6	5.5	3.6	5.5	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	0.5	1.0	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	5.2	4.6	6.0	4.6	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 37.4
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 11: Menifee Rd. & Heritage Lakes Dr.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	4	3	46	4	40	11	378	58	94	421	6
Future Volume (veh/h)	6	4	3	46	4	40	11	378	58	94	421	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	6	4	3	48	4	13	11	394	56	98	439	5
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	14	19	14	94	25	80	26	1242	172	155	1233	550
Arrive On Green	0.01	0.02	0.02	0.05	0.06	0.06	0.01	0.27	0.27	0.09	0.35	0.35
Sat Flow, veh/h	1781	992	744	1781	387	1257	1781	4519	626	1781	3554	1585
Grp Volume(v), veh/h	6	0	7	48	0	17	11	294	156	98	439	5
Grp Sat Flow(s),veh/h/ln	1781	0	1736	1781	0	1644	1781	1702	1742	1781	1777	1585
Q Serve(g_s), s	0.1	0.0	0.1	0.9	0.0	0.4	0.2	2.5	2.6	1.9	3.3	0.1
Cycle Q Clear(g_c), s	0.1	0.0	0.1	0.9	0.0	0.4	0.2	2.5	2.6	1.9	3.3	0.1
Prop In Lane	1.00		0.43	1.00		0.76	1.00		0.36	1.00		1.00
Lane Grp Cap(c), veh/h	14	0	33	94	0	105	26	935	478	155	1233	550
V/C Ratio(X)	0.42	0.00	0.21	0.51	0.00	0.16	0.43	0.31	0.33	0.63	0.36	0.01
Avail Cap(c_a), veh/h	247	0	1635	332	0	1599	247	1910	977	465	2429	1083
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.8	0.0	17.4	16.6	0.0	15.9	17.6	10.4	10.4	15.9	8.8	7.7
Incr Delay (d2), s/veh	7.0	0.0	3.2	1.6	0.0	0.7	4.1	0.2	0.4	1.6	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.1	0.4	0.0	0.1	0.1	0.6	0.6	0.6	0.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.7	0.0	20.6	18.2	0.0	16.7	21.7	10.6	10.8	17.5	8.9	7.7
LnGrp LOS	C	A	C	B	A	B	C	B	B	B	A	A
Approach Vol, veh/h		13			65			461			542	
Approach Delay, s/veh		22.5			17.8			10.9			10.5	
Approach LOS		C			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.7	15.9	6.5	5.9	5.1	18.5	4.9	7.5
Change Period (Y+Rc), s	4.6	6.0	4.6	* 5.2	4.6	6.0	4.6	5.2
Max Green Setting (Gmax), s	9.4	20.2	6.7	* 34	5.0	24.6	5.0	35.0
Max Q Clear Time (g_c+I1), s	3.9	4.6	2.9	2.1	2.2	5.3	2.1	2.4
Green Ext Time (p_c), s	0.0	2.1	0.0	0.0	0.0	2.3	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	11.2
HCM 6th LOS	B

Notes

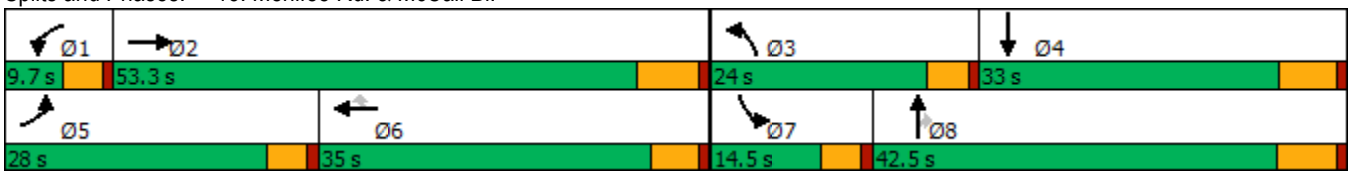
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

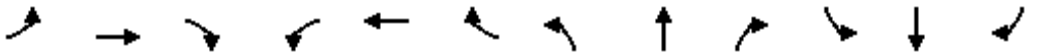
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	184	370	47	240	42	147	221	56	60	253
Future Volume (vph)	184	370	47	240	42	147	221	56	60	253
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	5	2	1	6		3	8		7	4
Permitted Phases					6			8		
Detector Phase	5	2	1	6	6	3	8	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	33.5	9.6	33.5	33.5	9.6	42.5	42.5	9.6	16.5
Total Split (s)	28.0	53.3	9.7	35.0	35.0	24.0	42.5	42.5	14.5	33.0
Total Split (%)	23.3%	44.4%	8.1%	29.2%	29.2%	20.0%	35.4%	35.4%	12.1%	27.5%
Yellow Time (s)	3.6	5.5	3.6	4.4	4.4	3.6	5.5	5.5	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.5	4.6	5.4	5.4	4.6	6.5	6.5	4.6	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 76.6
Natural Cycle: 100
Control Type: Actuated-Uncoordinated

Splits and Phases: 13: Menifee Rd. & McCall Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	184	370	218	47	240	42	147	221	56	60	253	157
Future Volume (veh/h)	184	370	218	47	240	42	147	221	56	60	253	157
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			Yes			Yes	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1859	1859	1859
Adj Flow Rate, veh/h	198	398	193	51	258	21	158	238	26	65	272	68
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	250	621	297	169	623	278	203	831	366	100	497	122
Arrive On Green	0.14	0.27	0.27	0.05	0.18	0.18	0.11	0.23	0.23	0.06	0.18	0.18
Sat Flow, veh/h	1781	2330	1115	3456	3554	1585	1781	3554	1565	1771	2811	690
Grp Volume(v), veh/h	198	302	289	51	258	21	158	238	26	65	169	171
Grp Sat Flow(s),veh/h/ln	1781	1777	1668	1728	1777	1585	1781	1777	1565	1771	1766	1735
Q Serve(g_s), s	6.1	8.5	8.6	0.8	3.6	0.6	4.9	3.1	0.7	2.0	4.9	5.1
Cycle Q Clear(g_c), s	6.1	8.5	8.6	0.8	3.6	0.6	4.9	3.1	0.7	2.0	4.9	5.1
Prop In Lane	1.00		0.67	1.00		1.00	1.00		1.00	1.00		0.40
Lane Grp Cap(c), veh/h	250	474	445	169	623	278	203	831	366	100	312	307
V/C Ratio(X)	0.79	0.64	0.65	0.30	0.41	0.08	0.78	0.29	0.07	0.65	0.54	0.56
Avail Cap(c_a), veh/h	740	1476	1386	313	1868	833	614	2271	1000	311	840	825
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.4	18.3	18.3	25.9	20.7	19.4	24.3	17.7	16.8	26.0	21.1	21.2
Incr Delay (d2), s/veh	2.2	1.4	1.6	0.4	0.4	0.1	2.5	0.2	0.1	2.6	1.5	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	3.0	2.9	0.3	1.4	0.2	1.8	1.0	0.2	0.8	1.8	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.6	19.7	19.9	26.2	21.1	19.5	26.7	17.9	16.9	28.6	22.6	22.8
LnGrp LOS	C	B	B	C	C	B	C	B	B	C	C	C
Approach Vol, veh/h		789			330			422			405	
Approach Delay, s/veh		21.3			21.8			21.1			23.6	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.3	21.5	11.0	16.5	12.5	16.4	7.8	19.7
Change Period (Y+Rc), s	4.6	6.5	4.6	* 6.5	4.6	* 6.5	4.6	6.5
Max Green Setting (Gmax), s	5.1	46.8	19.4	* 27	23.4	* 30	9.9	36.0
Max Q Clear Time (g_c+I1), s	2.8	10.6	6.9	7.1	8.1	5.6	4.0	5.1
Green Ext Time (p_c), s	0.0	3.4	0.1	1.5	0.2	1.6	0.0	1.4

Intersection Summary	
HCM 6th Ctrl Delay	21.8
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

APPENDIX 3.3: EXISTING (2022) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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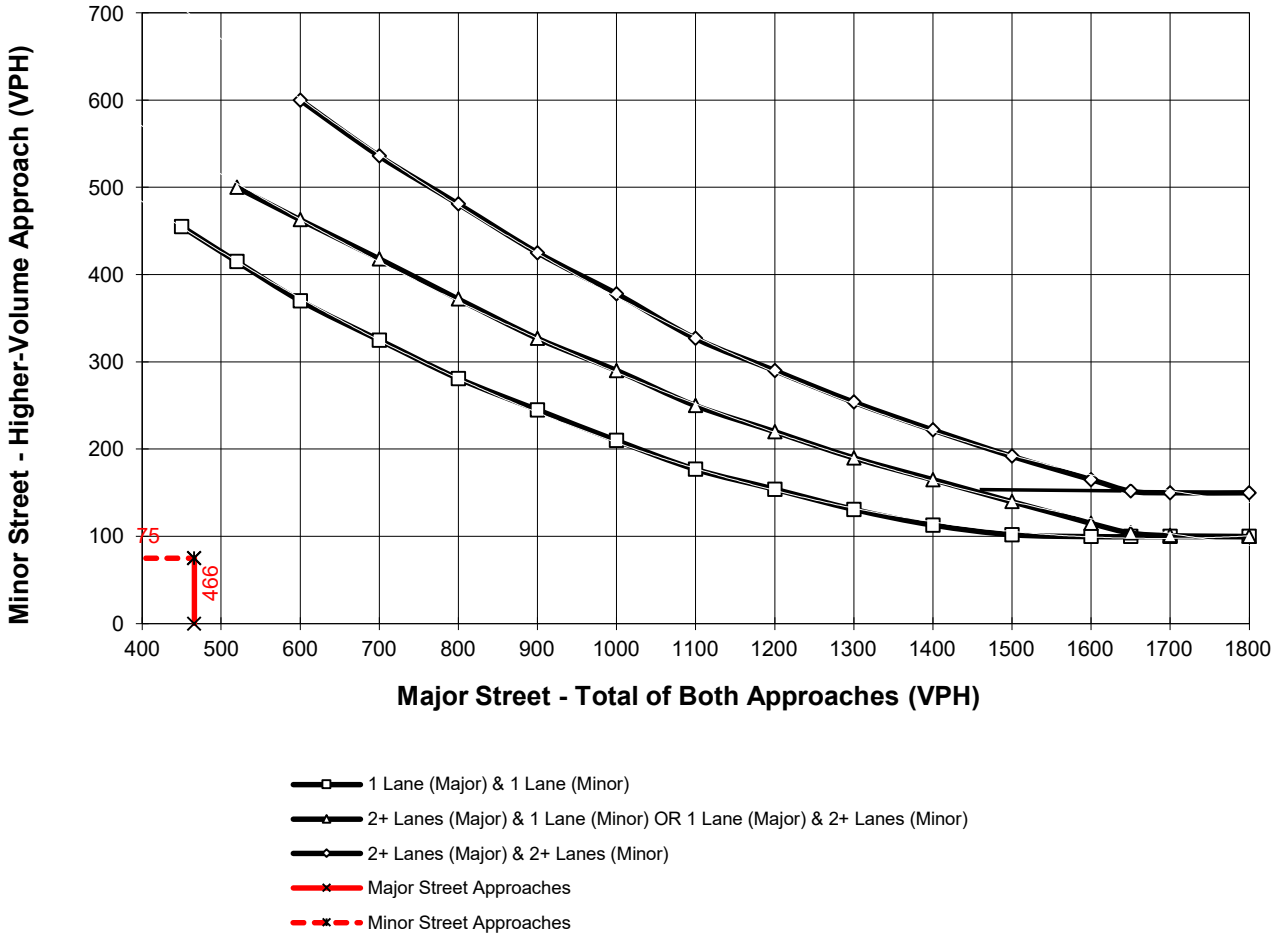
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **Existing (2022) Conditions - Weekday AM Peak Hour**

Major Street Name = **Junipero Rd.**
Total of Both Approaches (VPH) = **466**
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Heritage Lakes Dr.**
High Volume Approach (VPH) = **75**
Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

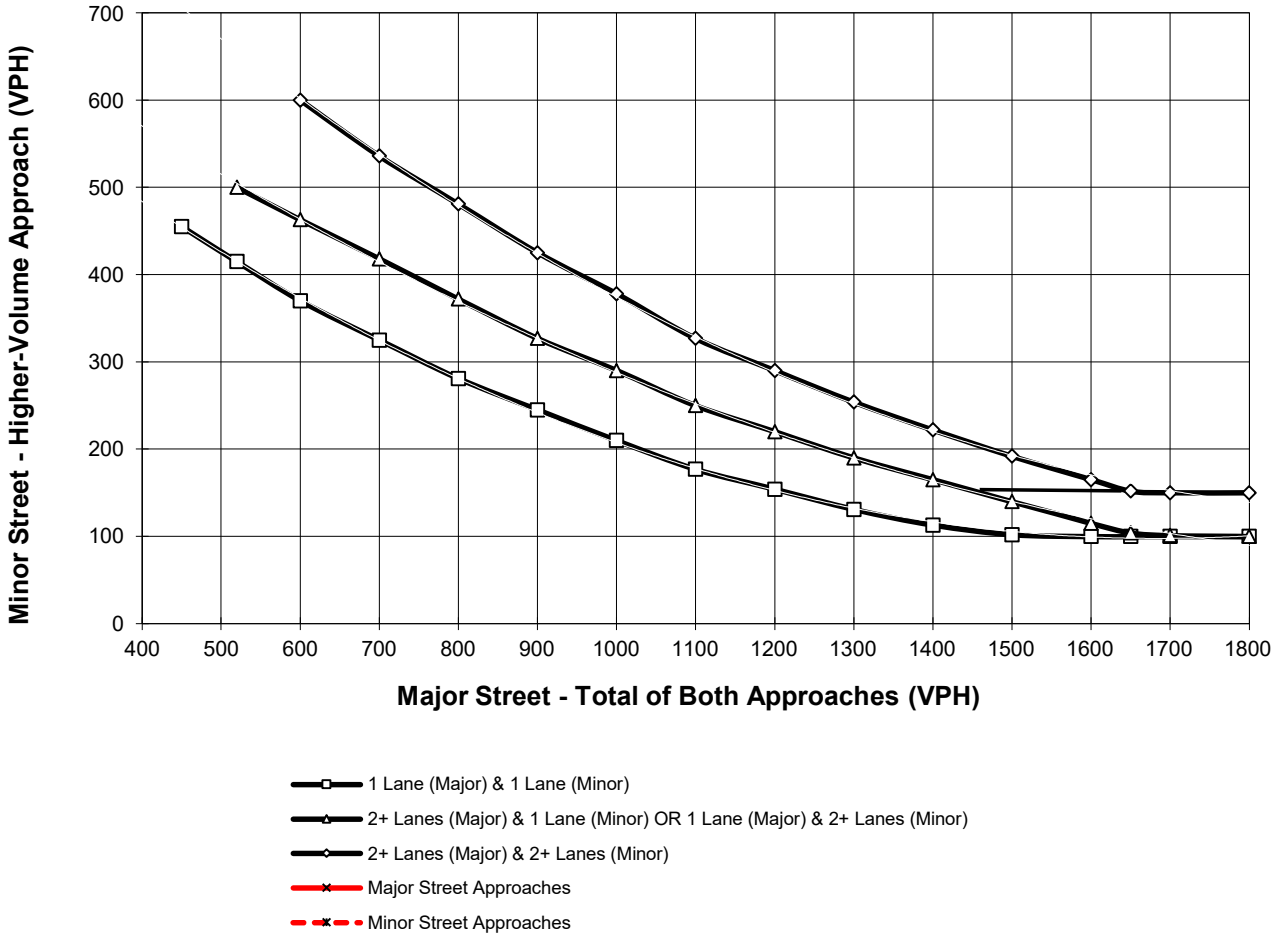
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **Existing (2022) Conditions - Weekday AM Peak Hour**

Major Street Name = **Heritage Lakes Dr.**
Total of Both Approaches (VPH) = **130**
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Settlement St.**
High Volume Approach (VPH) = **21**
Number of Approach Lanes On Minor Street = **1**

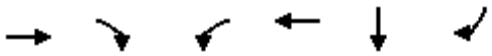
SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

APPENDIX 3.4: EXISTING (2022) CONDITIONS FREEWAY OFF- PEAK HOUR QUEUING ANALYSIS WORKSHEETS

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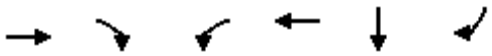
Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	688	408	500	801	204	253
v/c Ratio	0.56	0.50	0.87	0.32	0.62	0.50
Control Delay	29.4	5.2	35.9	13.6	46.0	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.4	5.2	35.9	13.6	46.0	8.2
Queue Length 50th (ft)	185	0	307	221	120	0
Queue Length 95th (ft)	270	71	401	275	197	65
Internal Link Dist (ft)	508			655	1385	
Turn Bay Length (ft)			230			455
Base Capacity (vph)	1232	817	699	2506	330	509
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.50	0.72	0.32	0.62	0.50

Intersection Summary



Lane Group	EBL	EBT	WBT	WBR	NBT	NBR
Lane Group Flow (vph)	249	670	1131	410	212	241
v/c Ratio	0.79	0.27	0.67	0.43	0.59	0.48
Control Delay	54.7	0.4	23.0	3.3	43.4	8.1
Queue Delay	0.0	0.0	0.5	0.0	0.0	0.0
Total Delay	54.7	0.4	23.5	3.3	43.4	8.1
Queue Length 50th (ft)	100	1	281	0	123	0
Queue Length 95th (ft)	176	2	396	55	199	63
Internal Link Dist (ft)		655	468		1818	
Turn Bay Length (ft)	260					240
Base Capacity (vph)	415	2447	1695	961	362	500
Starvation Cap Reductn	0	0	213	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.27	0.76	0.43	0.59	0.48

Intersection Summary



Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	866	377	304	888	355	493
v/c Ratio	0.70	0.48	0.85	0.42	0.62	0.80
Control Delay	32.2	4.9	48.7	13.8	34.1	32.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.2	4.9	48.7	13.8	34.1	32.3
Queue Length 50th (ft)	254	0	184	215	190	204
Queue Length 95th (ft)	331	63	#303	261	287	#373
Internal Link Dist (ft)	508			655	1385	
Turn Bay Length (ft)			230			455
Base Capacity (vph)	1240	786	402	2090	575	619
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.48	0.76	0.42	0.62	0.80

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBT	WBR	NBT	NBR
Lane Group Flow (vph)	303	931	798	200	406	513
v/c Ratio	0.85	0.47	0.68	0.31	0.66	0.82
Control Delay	43.0	4.5	33.3	5.3	33.9	34.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.0	4.5	33.3	5.3	33.9	34.7
Queue Length 50th (ft)	128	10	234	0	217	231
Queue Length 95th (ft)	#233	21	312	51	324	#411
Internal Link Dist (ft)		655	468		1818	
Turn Bay Length (ft)	260					240
Base Capacity (vph)	415	1999	1180	647	616	627
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.47	0.68	0.31	0.66	0.82

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

APPENDIX 5.1: E+P CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

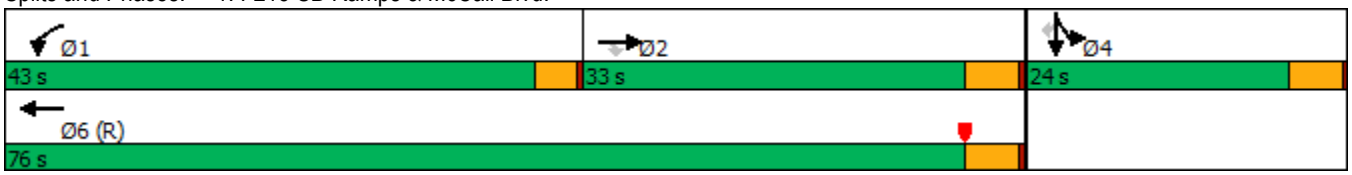
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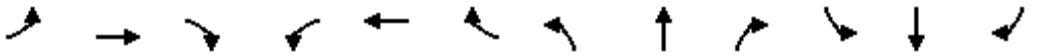
Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	668	396	500	781	1	245
Future Volume (vph)	668	396	500	781	1	245
Turn Type	NA	Perm	Prot	NA	NA	Perm
Protected Phases	2		1	6	4	
Permitted Phases		2				4
Detector Phase	2	2	1	6	4	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.0	22.0	9.0	20.0	20.0	20.0
Total Split (s)	33.0	33.0	43.0	76.0	24.0	24.0
Total Split (%)	33.0%	33.0%	43.0%	76.0%	24.0%	24.0%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	3.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	None	None	None	C-Max	Max	Max

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 61 (61%), Referenced to phase 6:WBT, Start of Yellow
Natural Cycle: 65
Control Type: Actuated-Coordinated

Splits and Phases: 1: I-215 SB Ramps & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	668	396	500	781	0	0	0	0	203	1	245
Future Volume (veh/h)	0	668	396	500	781	0	0	0	0	203	1	245
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1841	1885	1870	1856	0				1796	1900	1856
Adj Flow Rate, veh/h	0	689	0	515	805	0				209	1	96
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	4	1	2	3	0				7	0	3
Cap, veh/h	0	1311		544	2521	0				351	2	307
Arrive On Green	0.00	0.37	0.00	0.41	0.95	0.00				0.19	0.19	0.19
Sat Flow, veh/h	0	3589	1598	1781	3618	0				1801	9	1572
Grp Volume(v), veh/h	0	689	0	515	805	0				210	0	96
Grp Sat Flow(s),veh/h/ln	0	1749	1598	1781	1763	0				1810	0	1572
Q Serve(g_s), s	0.0	15.3	0.0	27.9	1.6	0.0				10.6	0.0	5.2
Cycle Q Clear(g_c), s	0.0	15.3	0.0	27.9	1.6	0.0				10.6	0.0	5.2
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1311		544	2521	0				353	0	307
V/C Ratio(X)	0.00	0.53		0.95	0.32	0.00				0.60	0.00	0.31
Avail Cap(c_a), veh/h	0	1311		704	2521	0				353	0	307
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.68	0.68	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	24.3	0.0	28.9	0.7	0.0				36.7	0.0	34.5
Incr Delay (d2), s/veh	0.0	0.2	0.0	13.2	0.2	0.0				7.2	0.0	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.0	0.0	11.8	0.4	0.0				5.2	0.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	24.5	0.0	42.1	1.0	0.0				43.9	0.0	37.2
LnGrp LOS	A	C		D	A	A				D	A	D
Approach Vol, veh/h		689			1320						306	
Approach Delay, s/veh		24.5			17.0						41.8	
Approach LOS		C			B						D	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	34.0	42.0		24.0		76.0						
Change Period (Y+Rc), s	3.5	4.5		4.5		4.5						
Max Green Setting (Gmax), s	39.5	28.5		19.5		71.5						
Max Q Clear Time (g_c+I1), s	29.9	17.3		12.6		3.6						
Green Ext Time (p_c), s	0.6	2.2		0.5		3.6						

Intersection Summary												
HCM 6th Ctrl Delay			22.5									
HCM 6th LOS			C									

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

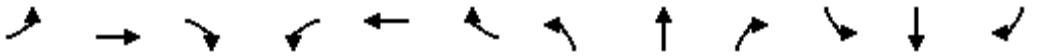
Lane Group	EBL	EBT	WBT	WBR	NBT	NBR
Lane Configurations						
Traffic Volume (vph)	234	637	1081	403	0	232
Future Volume (vph)	234	637	1081	403	0	232
Turn Type	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	6		8	
Permitted Phases				6		8
Detector Phase	5	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	8.5	22.0	20.0	20.0	20.0	20.0
Total Split (s)	27.9	75.0	47.1	47.1	25.0	25.0
Total Split (%)	27.9%	75.0%	47.1%	47.1%	25.0%	25.0%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	Max	Max

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection
Natural Cycle: 65
Control Type: Actuated-Coordinated

Splits and Phases: 2: I-215 NB Ramps & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	234	637	0	0	1081	403	199	0	232	0	0	0
Future Volume (veh/h)	234	637	0	0	1081	403	199	0	232	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1811	1841	0	0	1856	1870	1870	1900	1796			
Adj Flow Rate, veh/h	249	678	0	0	1150	0	212	0	108			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	6	4	0	0	3	2	2	0	7			
Cap, veh/h	282	2466	0	0	1787		371	0	312			
Arrive On Green	0.16	0.70	0.00	0.00	0.51	0.00	0.20	0.00	0.20			
Sat Flow, veh/h	1725	3589	0	0	3618	1585	1810	0	1522			
Grp Volume(v), veh/h	249	678	0	0	1150	0	212	0	108			
Grp Sat Flow(s),veh/h/ln	1725	1749	0	0	1763	1585	1810	0	1522			
Q Serve(g_s), s	14.1	7.1	0.0	0.0	23.9	0.0	10.6	0.0	6.1			
Cycle Q Clear(g_c), s	14.1	7.1	0.0	0.0	23.9	0.0	10.6	0.0	6.1			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	282	2466	0	0	1787		371	0	312			
V/C Ratio(X)	0.88	0.27	0.00	0.00	0.64		0.57	0.00	0.35			
Avail Cap(c_a), veh/h	421	2466	0	0	1787		371	0	312			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.80	0.80	0.00	0.00	0.53	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	40.9	5.4	0.0	0.0	18.1	0.0	35.8	0.0	34.0			
Incr Delay (d2), s/veh	8.4	0.2	0.0	0.0	1.0	0.0	6.3	0.0	3.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	6.4	2.0	0.0	0.0	8.9	0.0	5.1	0.0	2.4			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.3	5.6	0.0	0.0	19.0	0.0	42.1	0.0	37.0			
LnGrp LOS	D	A	A	A	B		D	A	D			
Approach Vol, veh/h		927			1150			320				
Approach Delay, s/veh		17.4			19.0			40.4				
Approach LOS		B			B			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		75.0			19.8	55.2		25.0				
Change Period (Y+Rc), s		4.5			3.5	4.5		4.5				
Max Green Setting (Gmax), s		70.5			24.4	42.6		20.5				
Max Q Clear Time (g_c+I1), s		9.1			16.1	25.9		12.6				
Green Ext Time (p_c), s		2.9			0.2	4.8		0.9				

Intersection Summary	
HCM 6th Ctrl Delay	21.2
HCM 6th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	125	656	47	1146	164	26	53	24	18
Future Volume (vph)	125	656	47	1146	164	26	53	24	18
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA
Protected Phases	5	2	1	6		8			4
Permitted Phases					8		8	4	
Detector Phase	5	2	1	6	8	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	31.0	9.5	31.0	33.0	33.0	33.0	20.0	20.0
Total Split (s)	18.0	55.4	11.6	49.0	33.0	33.0	33.0	33.0	33.0
Total Split (%)	18.0%	55.4%	11.6%	49.0%	33.0%	33.0%	33.0%	33.0%	33.0%
Yellow Time (s)	3.5	5.0	3.5	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	4.5	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 75.5
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Encanto Dr. & McCall Blvd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	656	88	47	1146	27	164	26	53	24	18	175
Future Volume (veh/h)	125	656	88	47	1146	27	164	26	53	24	18	175
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.99	0.99		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	130	683	81	49	1194	28	171	27	22	25	19	140
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	166	1443	171	80	1433	34	321	477	399	435	49	362
Arrive On Green	0.09	0.45	0.45	0.04	0.40	0.40	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	1781	3191	378	1781	3549	83	1227	1870	1566	1342	193	1422
Grp Volume(v), veh/h	130	380	384	49	598	624	171	27	22	25	0	159
Grp Sat Flow(s),veh/h/ln	1781	1777	1792	1781	1777	1855	1227	1870	1566	1342	0	1614
Q Serve(g_s), s	4.7	9.9	9.9	1.8	20.1	20.1	8.9	0.7	0.7	1.0	0.0	5.4
Cycle Q Clear(g_c), s	4.7	9.9	9.9	1.8	20.1	20.1	14.3	0.7	0.7	1.7	0.0	5.4
Prop In Lane	1.00		0.21	1.00		0.04	1.00		1.00	1.00		0.88
Lane Grp Cap(c), veh/h	166	804	811	80	717	749	321	477	399	435	0	411
V/C Ratio(X)	0.78	0.47	0.47	0.61	0.83	0.83	0.53	0.06	0.06	0.06	0.00	0.39
Avail Cap(c_a), veh/h	362	1320	1331	190	1149	1200	507	759	636	638	0	656
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.5	12.7	12.7	31.2	17.8	17.8	26.4	18.7	18.7	19.4	0.0	20.5
Incr Delay (d2), s/veh	3.0	0.2	0.2	2.8	1.4	1.4	0.5	0.0	0.0	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	3.2	3.2	0.8	7.0	7.3	2.5	0.3	0.2	0.3	0.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.5	12.8	12.9	34.0	19.3	19.2	26.9	18.8	18.7	19.4	0.0	20.7
LnGrp LOS	C	B	B	C	B	B	C	B	B	B	A	C
Approach Vol, veh/h		894			1271			220			184	
Approach Delay, s/veh		15.7			19.8			25.1			20.5	
Approach LOS		B			B			C			C	

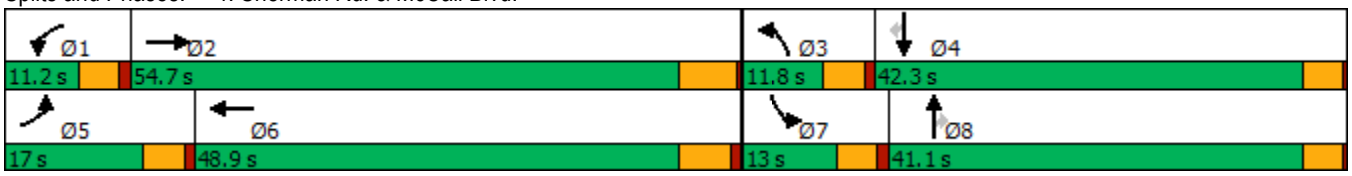
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.5	36.1		22.9	10.7	32.9		22.9				
Change Period (Y+Rc), s	4.5	6.0		6.0	4.5	6.0		6.0				
Max Green Setting (Gmax), s	7.1	49.4		27.0	13.5	43.0		27.0				
Max Q Clear Time (g_c+I1), s	3.8	11.9		7.4	6.7	22.1		16.3				
Green Ext Time (p_c), s	0.0	2.8		0.6	0.1	4.7		0.3				

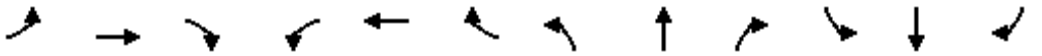
Intersection Summary												
HCM 6th Ctrl Delay			18.9									
HCM 6th LOS			B									

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	159	597	32	1114	83	37	13	102	33	127
Future Volume (vph)	159	597	32	1114	83	37	13	102	33	127
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2	1	6	3	8		7	4	
Permitted Phases							8			4
Detector Phase	5	2	1	6	3	8	8	7	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	38.7	9.6	38.8	9.6	41.1	41.1	9.6	41.1	41.1
Total Split (s)	17.0	54.7	11.2	48.9	11.8	41.1	41.1	13.0	42.3	42.3
Total Split (%)	14.2%	45.6%	9.3%	40.8%	9.8%	34.3%	34.3%	10.8%	35.3%	35.3%
Yellow Time (s)	3.6	5.2	3.6	4.8	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	0.5	1.0	1.0	1.0	0.5	0.5	1.0	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.7	4.6	5.8	4.6	4.1	4.1	4.6	4.1	4.1
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 97.7
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 4: Sherman Rd. & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	159	597	34	32	1114	96	83	37	13	102	33	127
Future Volume (veh/h)	159	597	34	32	1114	96	83	37	13	102	33	127
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.96	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	171	642	33	34	1198	97	89	40	9	110	35	75
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	208	1778	91	59	1442	117	114	252	204	140	279	236
Arrive On Green	0.12	0.52	0.52	0.03	0.43	0.43	0.06	0.13	0.13	0.08	0.15	0.15
Sat Flow, veh/h	1781	3439	177	1781	3330	269	1781	1870	1516	1781	1870	1582
Grp Volume(v), veh/h	171	331	344	34	638	657	89	40	9	110	35	75
Grp Sat Flow(s),veh/h/ln	1781	1777	1839	1781	1777	1822	1781	1870	1516	1781	1870	1582
Q Serve(g_s), s	7.6	8.9	8.9	1.5	25.6	25.7	4.0	1.5	0.4	4.9	1.3	3.4
Cycle Q Clear(g_c), s	7.6	8.9	8.9	1.5	25.6	25.7	4.0	1.5	0.4	4.9	1.3	3.4
Prop In Lane	1.00		0.10	1.00		0.15	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	208	918	950	59	770	789	114	252	204	140	279	236
V/C Ratio(X)	0.82	0.36	0.36	0.58	0.83	0.83	0.78	0.16	0.04	0.79	0.13	0.32
Avail Cap(c_a), veh/h	274	1081	1118	146	950	975	159	859	696	186	887	750
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.8	11.6	11.6	38.4	20.2	20.2	37.1	30.8	30.4	36.5	29.7	30.6
Incr Delay (d2), s/veh	10.9	0.2	0.2	3.3	5.2	5.2	9.6	0.3	0.1	10.7	0.2	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	3.0	3.1	0.7	10.2	10.5	2.0	0.7	0.2	2.5	0.6	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.6	11.8	11.8	41.7	25.4	25.4	46.8	31.1	30.4	47.2	29.9	31.4
LnGrp LOS	D	B	B	D	C	C	D	C	C	D	C	C
Approach Vol, veh/h		846			1329			138			220	
Approach Delay, s/veh		18.6			25.8			41.2			39.1	
Approach LOS		B			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.3	47.4	9.8	16.1	14.0	40.7	10.9	14.9
Change Period (Y+Rc), s	4.6	* 5.8	4.6	4.1	4.6	5.8	4.6	4.1
Max Green Setting (Gmax), s	6.6	* 49	7.2	38.2	12.4	43.1	8.4	37.0
Max Q Clear Time (g_c+I1), s	3.5	10.9	6.0	5.4	9.6	27.7	6.9	3.5
Green Ext Time (p_c), s	0.0	4.1	0.0	0.4	0.1	7.2	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	25.4
HCM 6th LOS	C

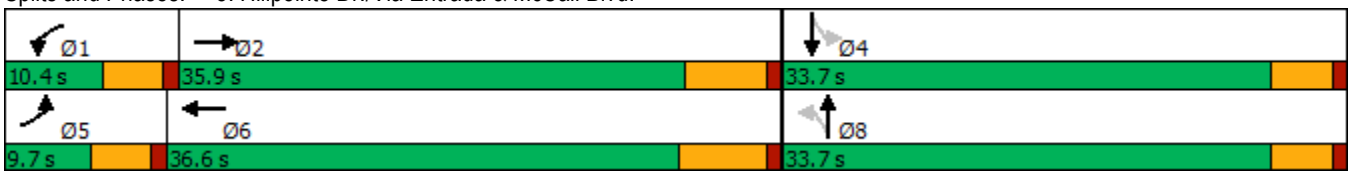
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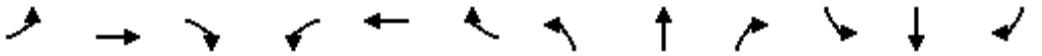
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	13	669	29	1097	100	3	32	15
Future Volume (vph)	13	669	29	1097	100	3	32	15
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases					8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	22.8	9.6	23.2	33.6	33.6	33.6	33.6
Total Split (s)	9.7	35.9	10.4	36.6	33.7	33.7	33.7	33.7
Total Split (%)	12.1%	44.9%	13.0%	45.8%	42.1%	42.1%	42.1%	42.1%
Yellow Time (s)	3.6	4.8	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.6	5.8	4.6	6.2		4.6		4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 47.3
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

Splits and Phases: 5: Hillpointe Dr./Via Entrada & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	669	30	29	1097	23	100	3	37	32	15	44
Future Volume (veh/h)	13	669	30	29	1097	23	100	3	37	32	15	44
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	14	719	28	31	1180	20	108	3	21	34	16	18
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	32	1534	60	64	1637	28	350	21	42	231	107	78
Arrive On Green	0.02	0.44	0.44	0.04	0.46	0.46	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	1781	3487	136	1781	3576	61	1129	116	235	614	594	435
Grp Volume(v), veh/h	14	366	381	31	586	614	132	0	0	68	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1846	1781	1777	1859	1480	0	0	1643	0	0
Q Serve(g_s), s	0.3	6.5	6.5	0.8	11.9	12.0	1.9	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.3	6.5	6.5	0.8	11.9	12.0	3.3	0.0	0.0	1.5	0.0	0.0
Prop In Lane	1.00		0.07	1.00		0.03	0.82		0.16	0.50		0.26
Lane Grp Cap(c), veh/h	32	781	812	64	813	851	413	0	0	417	0	0
V/C Ratio(X)	0.44	0.47	0.47	0.49	0.72	0.72	0.32	0.00	0.00	0.16	0.00	0.00
Avail Cap(c_a), veh/h	203	1196	1242	231	1208	1264	1076	0	0	1136	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	21.7	8.8	8.8	21.2	9.8	9.8	16.3	0.0	0.0	15.6	0.0	0.0
Incr Delay (d2), s/veh	3.5	0.4	0.4	2.1	1.2	1.2	0.4	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.7	1.7	0.3	2.8	3.0	1.1	0.0	0.0	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.3	9.3	9.3	23.3	11.0	11.0	16.8	0.0	0.0	15.8	0.0	0.0
LnGrp LOS	C	A	A	C	B	B	B	A	A	B	A	A
Approach Vol, veh/h		761			1231			132			68	
Approach Delay, s/veh		9.6			11.3			16.8			15.8	
Approach LOS		A			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.2	25.9		12.7	5.4	26.7		12.7				
Change Period (Y+Rc), s	4.6	* 6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	5.8	* 30		29.1	5.1	30.4		29.1				
Max Q Clear Time (g_c+I1), s	2.8	8.5		3.5	2.3	14.0		5.3				
Green Ext Time (p_c), s	0.0	4.2		0.3	0.0	6.5		0.7				

Intersection Summary		
HCM 6th Ctrl Delay		11.2
HCM 6th LOS		B

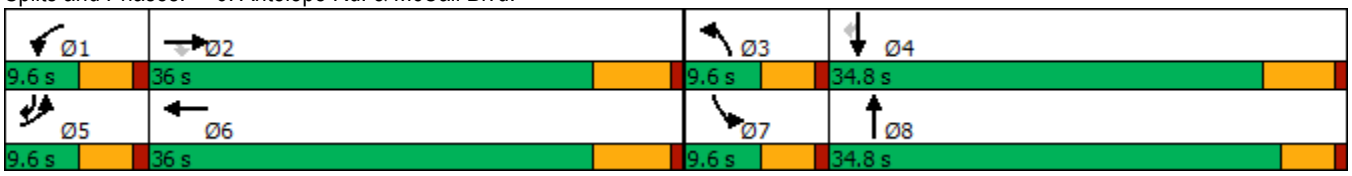
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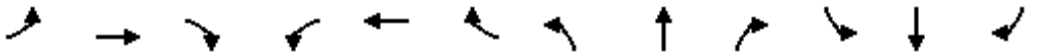
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	56	656	17	49	1006	44	14	11	3	96
Future Volume (vph)	56	656	17	49	1006	44	14	11	3	96
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA	pm+ov
Protected Phases	5	2		1	6	3	8	7	4	5
Permitted Phases			2							4
Detector Phase	5	2	2	1	6	3	8	7	4	5
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	35.2	35.2	9.6	35.2	9.6	33.6	9.6	34.8	9.6
Total Split (s)	9.6	36.0	36.0	9.6	36.0	9.6	34.8	9.6	34.8	9.6
Total Split (%)	10.7%	40.0%	40.0%	10.7%	40.0%	10.7%	38.7%	10.7%	38.7%	10.7%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6	5.8	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 60.1
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Antelope Rd. & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	656	17	49	1006	58	44	14	75	11	3	96
Future Volume (veh/h)	56	656	17	49	1006	58	44	14	75	11	3	96
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	62	721	17	54	1105	61	48	15	46	12	3	45
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	99	1490	664	91	1420	78	84	52	159	27	183	243
Arrive On Green	0.06	0.42	0.42	0.05	0.41	0.41	0.05	0.13	0.13	0.02	0.10	0.10
Sat Flow, veh/h	1781	3554	1583	1781	3424	189	1781	399	1224	1781	1870	1582
Grp Volume(v), veh/h	62	721	17	54	573	593	48	0	61	12	3	45
Grp Sat Flow(s),veh/h/ln	1781	1777	1583	1781	1777	1836	1781	0	1623	1781	1870	1582
Q Serve(g_s), s	1.9	8.1	0.3	1.6	15.4	15.4	1.5	0.0	1.9	0.4	0.1	1.4
Cycle Q Clear(g_c), s	1.9	8.1	0.3	1.6	15.4	15.4	1.5	0.0	1.9	0.4	0.1	1.4
Prop In Lane	1.00		1.00	1.00		0.10	1.00		0.75	1.00		1.00
Lane Grp Cap(c), veh/h	99	1490	664	91	737	762	84	0	211	27	183	243
V/C Ratio(X)	0.63	0.48	0.03	0.59	0.78	0.78	0.57	0.00	0.29	0.44	0.02	0.19
Avail Cap(c_a), veh/h	162	1921	856	162	961	993	162	0	889	162	984	921
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.5	11.7	9.4	25.6	13.9	13.9	25.7	0.0	21.7	26.9	22.5	20.3
Incr Delay (d2), s/veh	2.4	0.2	0.0	2.3	3.0	3.0	2.3	0.0	0.8	4.2	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	2.4	0.1	0.7	5.0	5.2	0.6	0.0	0.7	0.2	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.9	11.9	9.4	27.9	17.0	16.9	28.0	0.0	22.4	31.1	22.5	20.7
LnGrp LOS	C	B	A	C	B	B	C	A	C	C	C	C
Approach Vol, veh/h		800			1220			109			60	
Approach Delay, s/veh		13.1			17.4			24.9			22.9	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.4	29.3	7.2	11.2	7.7	29.1	5.4	13.0
Change Period (Y+Rc), s	4.6	6.2	4.6	5.8	4.6	6.2	4.6	* 5.8
Max Green Setting (Gmax), s	5.0	29.8	5.0	29.0	5.0	29.8	5.0	* 30
Max Q Clear Time (g_c+I1), s	3.6	10.1	3.5	3.4	3.9	17.4	2.4	3.9
Green Ext Time (p_c), s	0.0	4.3	0.0	0.1	0.0	5.4	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	16.4
HCM 6th LOS	B

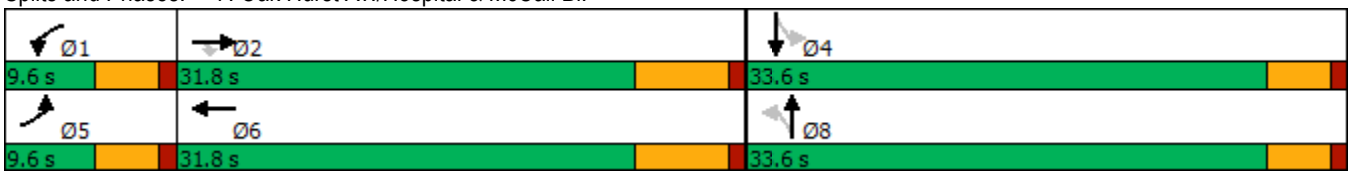
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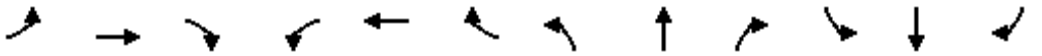
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	2	752	9	27	1059	30	1	15	1
Future Volume (vph)	2	752	9	27	1059	30	1	15	1
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2		1	6		8		4
Permitted Phases			2			8		4	
Detector Phase	5	2	2	1	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	23.2	23.2	9.6	23.2	33.6	33.6	14.6	14.6
Total Split (s)	9.6	31.8	31.8	9.6	31.8	33.6	33.6	33.6	33.6
Total Split (%)	12.8%	42.4%	42.4%	12.8%	42.4%	44.8%	44.8%	44.8%	44.8%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2		4.6		4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 44.4
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

Splits and Phases: 7: Oak Hurst Av./Hospital & McCall Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	752	9	27	1059	6	30	1	34	15	1	0
Future Volume (veh/h)	2	752	9	27	1059	6	30	1	34	15	1	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	845	10	30	1190	7	34	1	18	17	1	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	5	1558	695	64	1708	10	248	25	59	344	15	0
Arrive On Green	0.00	0.44	0.44	0.04	0.47	0.47	0.11	0.11	0.11	0.11	0.11	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3622	21	789	218	518	1379	133	0
Grp Volume(v), veh/h	2	845	10	30	584	613	53	0	0	18	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1867	1524	0	0	1512	0	0
Q Serve(g_s), s	0.0	6.5	0.1	0.6	9.7	9.7	0.4	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	6.5	0.1	0.6	9.7	9.7	1.1	0.0	0.0	0.3	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	0.64		0.34	0.94		0.00
Lane Grp Cap(c), veh/h	5	1558	695	64	838	880	331	0	0	359	0	0
V/C Ratio(X)	0.41	0.54	0.01	0.47	0.70	0.70	0.16	0.00	0.00	0.05	0.00	0.00
Avail Cap(c_a), veh/h	239	2436	1087	239	1218	1280	1310	0	0	1296	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	18.6	7.7	5.9	17.7	7.8	7.8	15.1	0.0	0.0	14.8	0.0	0.0
Incr Delay (d2), s/veh	19.0	0.3	0.0	2.0	1.1	1.0	0.2	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.2	0.0	0.2	1.7	1.8	0.4	0.0	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.6	8.0	5.9	19.6	8.8	8.8	15.4	0.0	0.0	14.9	0.0	0.0
LnGrp LOS	D	A	A	B	A	A	B	A	A	B	A	A
Approach Vol, veh/h		857			1227			53			18	
Approach Delay, s/veh		8.1			9.1			15.4			14.9	
Approach LOS		A			A			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.9	22.6		8.8	4.7	23.8		8.8				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	5.0	25.6		29.0	5.0	25.6		29.0				
Max Q Clear Time (g_c+I1), s	2.6	8.5		2.3	2.0	11.7		3.1				
Green Ext Time (p_c), s	0.0	4.9		0.0	0.0	6.0		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		8.9	
HCM 6th LOS		A	

Intersection	
Int Delay, s/veh	3.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	77	27	152	54	24	250
Future Vol, veh/h	77	27	152	54	24	250
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	64	64	64	64	64	64
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	120	42	238	84	38	391

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	747	280	0	0	322	0
Stage 1	280	-	-	-	-	-
Stage 2	467	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	381	759	-	-	1238	-
Stage 1	767	-	-	-	-	-
Stage 2	631	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	366	759	-	-	1238	-
Mov Cap-2 Maneuver	366	-	-	-	-	-
Stage 1	767	-	-	-	-	-
Stage 2	606	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.7	0	0.7
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	423	1238	-
HCM Lane V/C Ratio	-	-	0.384	0.03	-
HCM Control Delay (s)	-	-	18.7	8	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	1.8	0.1	-

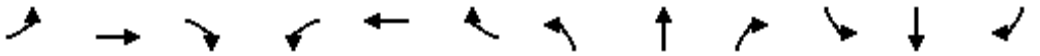
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	206	616	6	884	77	5	1	167	2
Future Volume (vph)	206	616	6	884	77	5	1	167	2
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2	1	6			8		4
Permitted Phases					6	8		4	
Detector Phase	5	2	1	6	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	23.2	9.6	23.2	23.2	22.6	22.6	33.6	33.6
Total Split (s)	19.0	46.8	9.6	37.4	37.4	33.6	33.6	33.6	33.6
Total Split (%)	21.1%	52.0%	10.7%	41.6%	41.6%	37.3%	37.3%	37.3%	37.3%
Yellow Time (s)	3.6	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	6.2		4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 75.7
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 9: Junipero Rd. & McCall Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	206	616	1	6	884	77	5	1	7	167	2	203
Future Volume (veh/h)	206	616	1	6	884	77	5	1	7	167	2	203
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	254	760	1	7	1091	72	6	1	2	206	2	153
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	303	1035	1	16	1397	623	187	38	37	393	4	295
Arrive On Green	0.17	0.55	0.55	0.01	0.39	0.39	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1781	1867	2	1781	3554	1585	479	199	194	1414	20	1565
Grp Volume(v), veh/h	254	0	761	7	1091	72	9	0	0	206	0	155
Grp Sat Flow(s),veh/h/ln	1781	0	1870	1781	1777	1585	873	0	0	1414	0	1586
Q Serve(g_s), s	8.6	0.0	19.0	0.2	16.7	1.8	0.0	0.0	0.0	2.6	0.0	5.5
Cycle Q Clear(g_c), s	8.6	0.0	19.0	0.2	16.7	1.8	5.5	0.0	0.0	8.0	0.0	5.5
Prop In Lane	1.00		0.00	1.00		1.00	0.67		0.22	1.00		0.99
Lane Grp Cap(c), veh/h	303	0	1036	16	1397	623	261	0	0	393	0	299
V/C Ratio(X)	0.84	0.00	0.73	0.43	0.78	0.12	0.03	0.00	0.00	0.52	0.00	0.52
Avail Cap(c_a), veh/h	414	0	1224	144	1788	798	638	0	0	788	0	742
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.9	0.0	10.4	30.6	16.5	12.0	20.7	0.0	0.0	23.6	0.0	22.6
Incr Delay (d2), s/veh	8.0	0.0	1.9	6.5	1.8	0.1	0.1	0.0	0.0	1.1	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.0	5.5	0.1	5.6	0.5	0.1	0.0	0.0	2.8	0.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.9	0.0	12.3	37.0	18.2	12.0	20.7	0.0	0.0	24.7	0.0	24.0
LnGrp LOS	C	A	B	D	B	B	C	A	A	C	A	C
Approach Vol, veh/h		1015			1170			9			361	
Approach Delay, s/veh		17.5			18.0			20.7			24.4	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.2	40.6		16.3	15.2	30.6		16.3				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	5.0	40.6		29.0	14.4	31.2		29.0				
Max Q Clear Time (g_c+I1), s	2.2	21.0		10.0	10.6	18.7		7.5				
Green Ext Time (p_c), s	0.0	4.7		1.5	0.1	5.7		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			18.7									
HCM 6th LOS			B									

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	55	14	6	62	10	29	0	18	15	0	6
Future Vol, veh/h	3	55	14	6	62	10	29	0	18	15	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	72	18	8	82	13	38	0	24	20	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	95	0	0	90	0	0	198	200	81	206	203	89
Stage 1	-	-	-	-	-	-	89	89	-	105	105	-
Stage 2	-	-	-	-	-	-	109	111	-	101	98	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1499	-	-	1505	-	-	761	696	979	752	693	969
Stage 1	-	-	-	-	-	-	918	821	-	901	808	-
Stage 2	-	-	-	-	-	-	896	804	-	905	814	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1499	-	-	1505	-	-	750	690	979	729	687	969
Mov Cap-2 Maneuver	-	-	-	-	-	-	750	690	-	729	687	-
Stage 1	-	-	-	-	-	-	915	819	-	898	803	-
Stage 2	-	-	-	-	-	-	883	799	-	880	812	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.6	9.7	9.8
HCM LOS			A	A

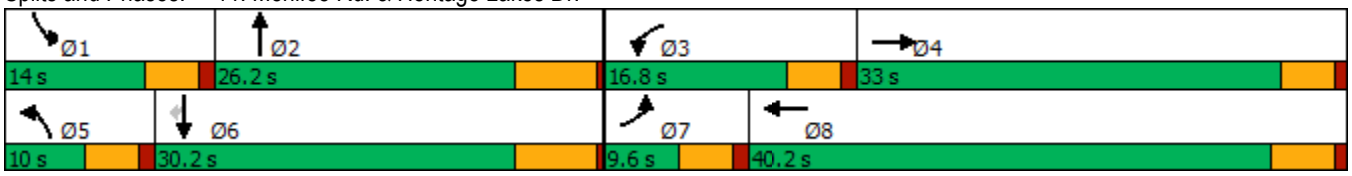
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	824	1499	-	-	1505	-	-	785
HCM Lane V/C Ratio	0.075	0.003	-	-	0.005	-	-	0.035
HCM Control Delay (s)	9.7	7.4	0	-	7.4	0	-	9.8
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.1

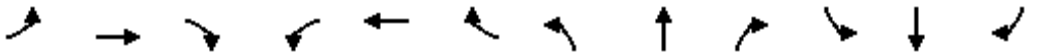
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	32	23	89	24	28	574	95	540	29
Future Volume (vph)	32	23	89	24	28	574	95	540	29
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2	1	6	
Permitted Phases									6
Detector Phase	7	4	3	8	5	2	1	6	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	14.6	9.6	40.2	9.6	26.0	9.6	26.0	26.0
Total Split (s)	9.6	33.0	16.8	40.2	10.0	26.2	14.0	30.2	30.2
Total Split (%)	10.7%	36.7%	18.7%	44.7%	11.1%	29.1%	15.6%	33.6%	33.6%
Yellow Time (s)	3.6	3.6	3.6	4.2	3.6	5.5	3.6	5.5	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	0.5	1.0	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	5.2	4.6	6.0	4.6	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 62.1
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 11: Menifee Rd. & Heritage Lakes Dr.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	23	34	89	24	159	28	574	45	95	540	29
Future Volume (veh/h)	32	23	34	89	24	159	28	574	45	95	540	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	40	29	16	111	30	98	35	718	41	119	675	30
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	77	176	97	145	74	243	69	1207	69	153	1036	452
Arrive On Green	0.04	0.16	0.16	0.08	0.19	0.19	0.04	0.24	0.24	0.09	0.29	0.29
Sat Flow, veh/h	1781	1126	622	1781	383	1250	1781	4935	280	1781	3554	1549
Grp Volume(v), veh/h	40	0	45	111	0	128	35	494	265	119	675	30
Grp Sat Flow(s),veh/h/ln	1781	0	1748	1781	0	1633	1781	1702	1811	1781	1777	1549
Q Serve(g_s), s	1.0	0.0	1.1	2.9	0.0	3.2	0.9	6.1	6.1	3.1	7.8	0.7
Cycle Q Clear(g_c), s	1.0	0.0	1.1	2.9	0.0	3.2	0.9	6.1	6.1	3.1	7.8	0.7
Prop In Lane	1.00		0.36	1.00		0.77	1.00		0.15	1.00		1.00
Lane Grp Cap(c), veh/h	77	0	274	145	0	318	69	832	443	153	1036	452
V/C Ratio(X)	0.52	0.00	0.16	0.77	0.00	0.40	0.50	0.59	0.60	0.78	0.65	0.07
Avail Cap(c_a), veh/h	189	0	1051	460	0	1209	204	1455	774	354	1820	794
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.1	0.0	17.2	21.3	0.0	16.6	22.3	15.8	15.8	21.2	14.6	12.1
Incr Delay (d2), s/veh	2.0	0.0	0.3	3.2	0.0	0.8	2.1	0.7	1.3	3.2	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.4	1.2	0.0	1.1	0.3	1.8	2.0	1.2	2.3	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.1	0.0	17.5	24.5	0.0	17.5	24.4	16.5	17.1	24.3	15.3	12.2
LnGrp LOS	C	A	B	C	A	B	C	B	B	C	B	B
Approach Vol, veh/h		85			239			794			824	
Approach Delay, s/veh		20.6			20.7			17.0			16.5	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.7	17.6	8.4	12.6	6.4	19.8	6.6	14.4
Change Period (Y+Rc), s	4.6	6.0	4.6	* 5.2	4.6	6.0	4.6	5.2
Max Green Setting (Gmax), s	9.4	20.2	12.2	* 28	5.4	24.2	5.0	35.0
Max Q Clear Time (g_c+I1), s	5.1	8.1	4.9	3.1	2.9	9.8	3.0	5.2
Green Ext Time (p_c), s	0.0	3.3	0.1	0.2	0.0	3.5	0.0	0.7

Intersection Summary	
HCM 6th Ctrl Delay	17.4
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	26	0	647	663	3
Future Vol, veh/h	0	26	0	647	663	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	28	0	703	721	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	362	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-	-
Pot Cap-1 Maneuver	0	542	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	542	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12	0	0
HCM LOS	B		

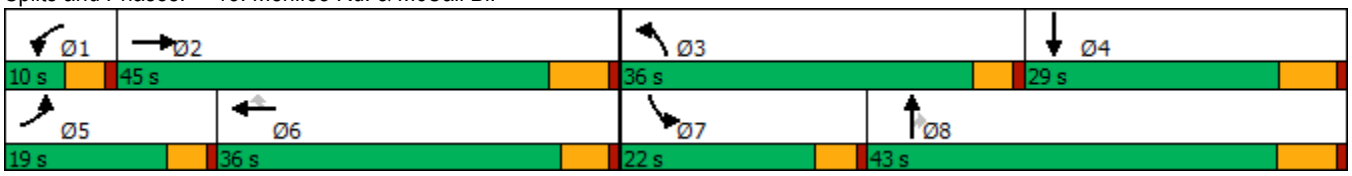
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	542	-	-
HCM Lane V/C Ratio	-	0.052	-	-
HCM Control Delay (s)	-	12	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.2	-	-

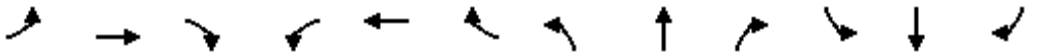
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	137	354	51	465	204	323	306	36	171	338
Future Volume (vph)	137	354	51	465	204	323	306	36	171	338
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	5	2	1	6		3	8		7	4
Permitted Phases					6			8		
Detector Phase	5	2	1	6	6	3	8	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	33.5	9.6	33.5	33.5	9.6	42.5	42.5	9.6	16.5
Total Split (s)	19.0	45.0	10.0	36.0	36.0	36.0	43.0	43.0	22.0	29.0
Total Split (%)	15.8%	37.5%	8.3%	30.0%	30.0%	30.0%	35.8%	35.8%	18.3%	24.2%
Yellow Time (s)	3.6	5.5	3.6	4.4	4.4	3.6	5.5	5.5	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.5	4.6	5.4	5.4	4.6	6.5	6.5	4.6	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 107.9
Natural Cycle: 110
Control Type: Actuated-Uncoordinated

Splits and Phases: 13: Menifee Rd. & McCall Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	137	354	286	51	465	204	323	306	36	171	338	180
Future Volume (veh/h)	137	354	286	51	465	204	323	306	36	171	338	180
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			Yes			Yes	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1859	1859	1859
Adj Flow Rate, veh/h	169	437	276	63	574	122	399	378	27	211	417	142
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	202	589	369	149	748	334	434	1066	469	245	503	169
Arrive On Green	0.11	0.28	0.28	0.04	0.21	0.21	0.24	0.30	0.30	0.14	0.19	0.19
Sat Flow, veh/h	1781	2097	1314	3456	3554	1585	1781	3554	1563	1771	2585	870
Grp Volume(v), veh/h	169	370	343	63	574	122	399	378	27	211	283	276
Grp Sat Flow(s),veh/h/ln	1781	1777	1634	1728	1777	1585	1781	1777	1563	1771	1766	1689
Q Serve(g_s), s	8.7	17.7	17.9	1.7	14.2	6.2	20.4	7.8	1.2	10.9	14.4	14.7
Cycle Q Clear(g_c), s	8.7	17.7	17.9	1.7	14.2	6.2	20.4	7.8	1.2	10.9	14.4	14.7
Prop In Lane	1.00		0.80	1.00		1.00	1.00		1.00	1.00		0.52
Lane Grp Cap(c), veh/h	202	499	459	149	748	334	434	1066	469	245	344	329
V/C Ratio(X)	0.84	0.74	0.75	0.42	0.77	0.37	0.92	0.35	0.06	0.86	0.82	0.84
Avail Cap(c_a), veh/h	274	731	672	199	1162	518	598	1386	610	329	430	412
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.6	30.5	30.6	43.6	34.8	31.6	34.5	25.6	23.3	39.4	36.1	36.3
Incr Delay (d2), s/veh	11.5	2.3	2.6	0.7	1.7	0.7	13.3	0.2	0.1	12.7	10.1	11.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	7.3	6.8	0.7	6.1	2.2	9.6	3.0	0.4	5.3	6.7	6.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.1	32.8	33.2	44.3	36.5	32.3	47.7	25.8	23.4	52.2	46.3	48.0
LnGrp LOS	D	C	C	D	D	C	D	C	C	D	D	D
Approach Vol, veh/h		882			759			804			770	
Approach Delay, s/veh		36.7			36.4			36.6			48.5	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.6	32.8	27.4	24.7	15.2	26.2	17.6	34.6
Change Period (Y+Rc), s	4.6	6.5	4.6	* 6.5	4.6	* 6.5	4.6	6.5
Max Green Setting (Gmax), s	5.4	38.5	31.4	* 23	14.4	* 31	17.4	36.5
Max Q Clear Time (g_c+I1), s	3.7	19.9	22.4	16.7	10.7	16.2	12.9	9.8
Green Ext Time (p_c), s	0.0	3.8	0.4	1.5	0.1	3.5	0.1	2.2

Intersection Summary	
HCM 6th Ctrl Delay	39.4
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

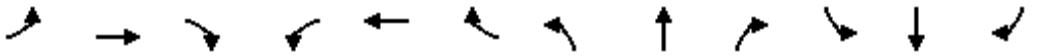
Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	853	369	307	872	0	483
Future Volume (vph)	853	369	307	872	0	483
Turn Type	NA	Perm	Prot	NA	NA	Perm
Protected Phases	2		1	6	4	
Permitted Phases		2				4
Detector Phase	2	2	1	6	4	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.0	22.0	9.0	20.0	20.0	20.0
Total Split (s)	37.0	37.0	26.0	63.0	37.0	37.0
Total Split (%)	37.0%	37.0%	26.0%	63.0%	37.0%	37.0%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	3.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	None	None	None	C-Max	Max	Max

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 61 (61%), Referenced to phase 6:WBT, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 1: I-215 SB Ramps & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	853	369	307	872	0	0	0	0	367	0	483
Future Volume (veh/h)	0	853	369	307	872	0	0	0	0	367	0	483
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1885	1885	0				1870	1900	1885
Adj Flow Rate, veh/h	0	870	0	313	890	0				374	0	325
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98
Percent Heavy Veh, %	0	2	2	1	1	0				2	0	1
Cap, veh/h	0	1276		343	2095	0				588	0	519
Arrive On Green	0.00	0.36	0.00	0.25	0.78	0.00				0.32	0.00	0.32
Sat Flow, veh/h	0	3647	1585	1795	3676	0				1810	0	1598
Grp Volume(v), veh/h	0	870	0	313	890	0				374	0	325
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1795	1791	0				1810	0	1598
Q Serve(g_s), s	0.0	20.8	0.0	16.9	8.2	0.0				17.6	0.0	17.2
Cycle Q Clear(g_c), s	0.0	20.8	0.0	16.9	8.2	0.0				17.6	0.0	17.2
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1276		343	2095	0				588	0	519
V/C Ratio(X)	0.00	0.68		0.91	0.42	0.00				0.64	0.00	0.63
Avail Cap(c_a), veh/h	0	1276		404	2095	0				588	0	519
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.67	0.67	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	27.2	0.0	36.5	5.5	0.0				28.7	0.0	28.6
Incr Delay (d2), s/veh	0.0	1.2	0.0	15.5	0.4	0.0				5.2	0.0	5.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	8.4	0.0	8.0	2.3	0.0				8.0	0.0	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	28.4	0.0	51.9	5.9	0.0				33.9	0.0	34.2
LnGrp LOS	A	C		D	A	A				C	A	C
Approach Vol, veh/h		870			1203						699	
Approach Delay, s/veh		28.4			17.9						34.0	
Approach LOS		C			B						C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	22.6	40.4		37.0		63.0
Change Period (Y+Rc), s	3.5	4.5		4.5		4.5
Max Green Setting (Gmax), s	22.5	32.5		32.5		58.5
Max Q Clear Time (g_c+I1), s	18.9	22.8		19.6		10.2
Green Ext Time (p_c), s	0.2	2.7		1.6		4.0

Intersection Summary		
HCM 6th Ctrl Delay		25.3
HCM 6th LOS		C

Notes

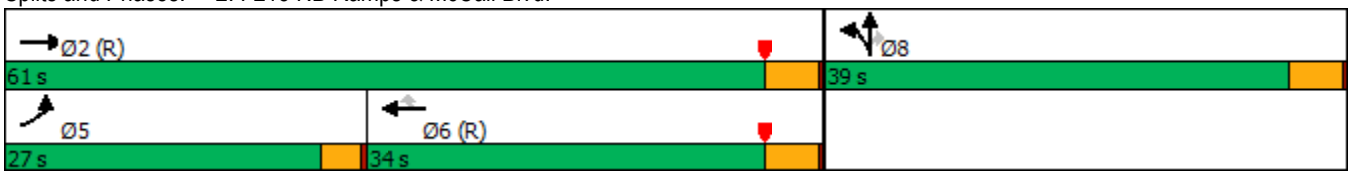
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

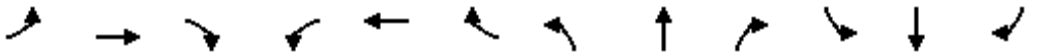
Lane Group	EBL	EBT	WBT	WBR	NBT	NBR
Lane Configurations						
Traffic Volume (vph)	294	926	785	205	0	513
Future Volume (vph)	294	926	785	205	0	513
Turn Type	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	6		8	
Permitted Phases				6		8
Detector Phase	5	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	8.5	22.0	20.0	20.0	20.0	20.0
Total Split (s)	27.0	61.0	34.0	34.0	39.0	39.0
Total Split (%)	27.0%	61.0%	34.0%	34.0%	39.0%	39.0%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	Max	Max

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection
Natural Cycle: 65
Control Type: Actuated-Coordinated

Splits and Phases: 2: I-215 NB Ramps & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	294	926	0	0	785	205	394	0	513	0	0	0
Future Volume (veh/h)	294	926	0	0	785	205	394	0	513	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1900	1856	1885	1900	1870			
Adj Flow Rate, veh/h	303	955	0	0	809	0	406	0	402			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	2	2	0	0	0	3	1	0	2			
Cap, veh/h	336	2008	0	0	1233		624	0	547			
Arrive On Green	0.19	0.56	0.00	0.00	0.34	0.00	0.34	0.00	0.34			
Sat Flow, veh/h	1781	3647	0	0	3705	1572	1810	0	1585			
Grp Volume(v), veh/h	303	955	0	0	809	0	406	0	402			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1805	1572	1810	0	1585			
Q Serve(g_s), s	16.6	16.0	0.0	0.0	19.0	0.0	18.9	0.0	22.3			
Cycle Q Clear(g_c), s	16.6	16.0	0.0	0.0	19.0	0.0	18.9	0.0	22.3			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	336	2008	0	0	1233		624	0	547			
V/C Ratio(X)	0.90	0.48	0.00	0.00	0.66		0.65	0.00	0.74			
Avail Cap(c_a), veh/h	419	2008	0	0	1233		624	0	547			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.64	0.64	0.00	0.00	0.82	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	39.7	12.9	0.0	0.0	27.9	0.0	27.7	0.0	28.7			
Incr Delay (d2), s/veh	12.3	0.5	0.0	0.0	2.2	0.0	5.2	0.0	8.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	8.1	5.7	0.0	0.0	8.1	0.0	8.6	0.0	9.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.0	13.5	0.0	0.0	30.2	0.0	32.8	0.0	37.3			
LnGrp LOS	D	B	A	A	C		C	A	D			
Approach Vol, veh/h		1258			809			808				
Approach Delay, s/veh		22.7			30.2			35.0				
Approach LOS		C			C			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		61.0			22.3	38.7		39.0				
Change Period (Y+Rc), s		4.5			3.5	4.5		4.5				
Max Green Setting (Gmax), s		56.5			23.5	29.5		34.5				
Max Q Clear Time (g_c+I1), s		18.0			18.6	21.0		24.3				
Green Ext Time (p_c), s		4.4			0.2	2.3		2.8				

Intersection Summary	
HCM 6th Ctrl Delay	28.3
HCM 6th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

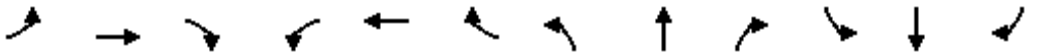
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	147	1065	34	709	148	19	25	32	22
Future Volume (vph)	147	1065	34	709	148	19	25	32	22
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA
Protected Phases	5	2	1	6		8			4
Permitted Phases					8		8	4	
Detector Phase	5	2	1	6	8	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	31.0	9.5	31.0	33.0	33.0	33.0	20.0	20.0
Total Split (s)	21.0	56.0	11.0	46.0	33.0	33.0	33.0	33.0	33.0
Total Split (%)	21.0%	56.0%	11.0%	46.0%	33.0%	33.0%	33.0%	33.0%	33.0%
Yellow Time (s)	3.5	5.0	3.5	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	4.5	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 67.5
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Encanto Dr. & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	147	1065	228	34	709	18	148	19	25	32	22	134
Future Volume (veh/h)	147	1065	228	34	709	18	148	19	25	32	22	134
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	153	1109	201	35	739	18	154	20	17	33	23	66
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	197	1388	251	67	1379	34	327	361	306	386	82	236
Arrive On Green	0.11	0.46	0.46	0.04	0.39	0.39	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1781	3006	543	1781	3545	86	1308	1870	1581	1368	426	1224
Grp Volume(v), veh/h	153	654	656	35	370	387	154	20	17	33	0	89
Grp Sat Flow(s),veh/h/ln	1781	1777	1772	1781	1777	1855	1308	1870	1581	1368	0	1650
Q Serve(g_s), s	4.5	16.8	17.0	1.0	8.6	8.6	6.1	0.5	0.5	1.1	0.0	2.5
Cycle Q Clear(g_c), s	4.5	16.8	17.0	1.0	8.6	8.6	8.6	0.5	0.5	1.6	0.0	2.5
Prop In Lane	1.00		0.31	1.00		0.05	1.00		1.00	1.00		0.74
Lane Grp Cap(c), veh/h	197	820	818	67	691	722	327	361	306	386	0	319
V/C Ratio(X)	0.78	0.80	0.80	0.52	0.54	0.54	0.47	0.06	0.06	0.09	0.00	0.28
Avail Cap(c_a), veh/h	547	1654	1649	216	1323	1381	731	940	795	809	0	829
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.2	12.3	12.4	25.4	12.7	12.7	22.1	17.7	17.7	18.3	0.0	18.5
Incr Delay (d2), s/veh	2.5	0.7	0.7	2.3	0.2	0.2	0.4	0.0	0.0	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	4.8	4.8	0.4	2.6	2.8	1.8	0.2	0.2	0.3	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.7	13.0	13.1	27.7	12.9	12.9	22.5	17.7	17.7	18.3	0.0	18.7
LnGrp LOS	C	B	B	C	B	B	C	B	B	B	A	B
Approach Vol, veh/h		1463			792			191			122	
Approach Delay, s/veh		14.4			13.6			21.6			18.6	
Approach LOS		B			B			C			B	

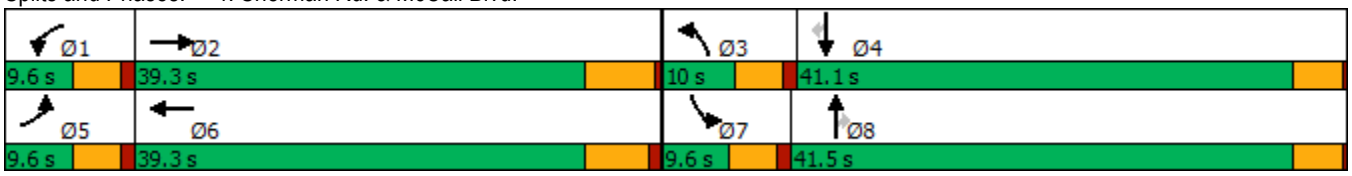
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.5	30.8		16.4	10.4	26.9		16.4				
Change Period (Y+Rc), s	4.5	6.0		6.0	4.5	6.0		6.0				
Max Green Setting (Gmax), s	6.5	50.0		27.0	16.5	40.0		27.0				
Max Q Clear Time (g_c+I1), s	3.0	19.0		4.5	6.5	10.6		10.6				
Green Ext Time (p_c), s	0.0	5.8		0.3	0.1	2.7		0.3				

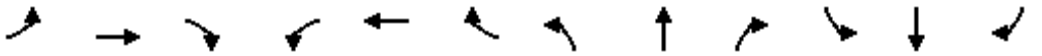
Intersection Summary												
HCM 6th Ctrl Delay			14.9									
HCM 6th LOS			B									

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	25	1038	17	673	71	7	17	32	10	12
Future Volume (vph)	25	1038	17	673	71	7	17	32	10	12
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2	1	6	3	8		7	4	
Permitted Phases							8			4
Detector Phase	5	2	1	6	3	8	8	7	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	38.7	9.6	38.8	9.6	41.1	41.1	9.6	41.1	41.1
Total Split (s)	9.6	39.3	9.6	39.3	10.0	41.5	41.5	9.6	41.1	41.1
Total Split (%)	9.6%	39.3%	9.6%	39.3%	10.0%	41.5%	41.5%	9.6%	41.1%	41.1%
Yellow Time (s)	3.6	5.2	3.6	4.8	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	0.5	1.0	1.0	1.0	0.5	0.5	1.0	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.7	4.6	5.8	4.6	4.1	4.1	4.6	4.1	4.1
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 54.7
Natural Cycle: 100
Control Type: Actuated-Uncoordinated

Splits and Phases: 4: Sherman Rd. & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	1038	62	17	673	30	71	7	17	32	10	12
Future Volume (veh/h)	25	1038	62	17	673	30	71	7	17	32	10	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	1116	61	18	724	30	76	8	7	34	11	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	56	1542	84	40	1533	63	117	186	153	67	134	113
Arrive On Green	0.03	0.45	0.45	0.02	0.44	0.44	0.07	0.10	0.10	0.04	0.07	0.07
Sat Flow, veh/h	1781	3426	187	1781	3477	144	1781	1870	1533	1781	1870	1583
Grp Volume(v), veh/h	27	579	598	18	370	384	76	8	7	34	11	1
Grp Sat Flow(s),veh/h/ln	1781	1777	1837	1781	1777	1844	1781	1870	1533	1781	1870	1583
Q Serve(g_s), s	0.7	13.0	13.0	0.5	7.2	7.2	2.0	0.2	0.2	0.9	0.3	0.0
Cycle Q Clear(g_c), s	0.7	13.0	13.0	0.5	7.2	7.2	2.0	0.2	0.2	0.9	0.3	0.0
Prop In Lane	1.00		0.10	1.00		0.08	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	56	800	826	40	783	813	117	186	153	67	134	113
V/C Ratio(X)	0.48	0.72	0.72	0.46	0.47	0.47	0.65	0.04	0.05	0.50	0.08	0.01
Avail Cap(c_a), veh/h	182	1220	1261	182	1217	1263	197	1430	1172	182	1415	1197
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.3	11.0	11.0	23.6	9.7	9.7	22.3	19.9	19.9	23.1	21.2	21.1
Incr Delay (d2), s/veh	2.4	1.3	1.2	3.0	0.4	0.4	2.2	0.1	0.1	2.2	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	3.6	3.8	0.2	2.0	2.0	0.9	0.1	0.1	0.4	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.7	12.2	12.2	26.7	10.1	10.1	24.5	20.0	20.0	25.3	21.5	21.1
LnGrp LOS	C	B	B	C	B	B	C	C	C	C	C	C
Approach Vol, veh/h		1204			772			91			46	
Approach Delay, s/veh		12.5			10.5			23.8			24.3	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.7	27.8	7.8	7.6	6.1	27.4	6.5	9.0
Change Period (Y+Rc), s	4.6	* 5.8	4.6	4.1	4.6	5.8	4.6	4.1
Max Green Setting (Gmax), s	5.0	* 34	5.4	37.0	5.0	33.5	5.0	37.4
Max Q Clear Time (g_c+I1), s	2.5	15.0	4.0	2.3	2.7	9.2	2.9	2.2
Green Ext Time (p_c), s	0.0	7.0	0.0	0.0	0.0	4.4	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	12.5
HCM 6th LOS	B

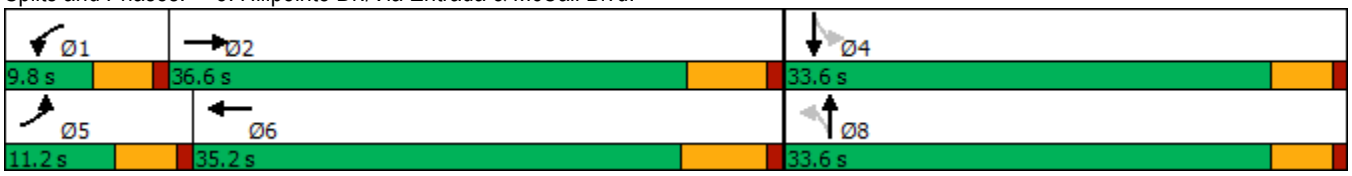
Notes

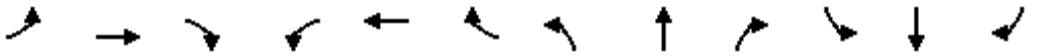
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	47	941	26	669	68	2	14	4
Future Volume (vph)	47	941	26	669	68	2	14	4
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases					8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	22.8	9.6	23.2	33.6	33.6	33.6	33.6
Total Split (s)	11.2	36.6	9.8	35.2	33.6	33.6	33.6	33.6
Total Split (%)	14.0%	45.8%	12.3%	44.0%	42.0%	42.0%	42.0%	42.0%
Yellow Time (s)	3.6	4.8	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.6	5.8	4.6	6.2		4.6		4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 43.7
Natural Cycle: 75
Control Type: Actuated-Uncoordinated

Splits and Phases: 5: Hillpointe Dr./Via Entrada & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	941	115	26	669	11	68	2	19	14	4	30
Future Volume (veh/h)	47	941	115	26	669	11	68	2	19	14	4	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	49	980	110	27	697	10	71	2	12	15	4	6
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	93	1435	161	57	1527	22	329	20	31	251	71	58
Arrive On Green	0.05	0.45	0.45	0.03	0.43	0.43	0.15	0.15	0.15	0.15	0.15	0.15
Sat Flow, veh/h	1781	3221	361	1781	3586	51	1127	130	207	743	471	383
Grp Volume(v), veh/h	49	541	549	27	345	362	85	0	0	25	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1805	1781	1777	1861	1465	0	0	1597	0	0
Q Serve(g_s), s	1.1	10.0	10.1	0.6	5.7	5.7	1.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.1	10.0	10.1	0.6	5.7	5.7	2.1	0.0	0.0	0.5	0.0	0.0
Prop In Lane	1.00		0.20	1.00		0.03	0.84		0.14	0.60		0.24
Lane Grp Cap(c), veh/h	93	792	805	57	757	793	380	0	0	379	0	0
V/C Ratio(X)	0.53	0.68	0.68	0.47	0.46	0.46	0.22	0.00	0.00	0.07	0.00	0.00
Avail Cap(c_a), veh/h	284	1320	1341	223	1243	1302	1167	0	0	1202	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	19.2	9.2	9.2	19.7	8.5	8.5	15.8	0.0	0.0	15.2	0.0	0.0
Incr Delay (d2), s/veh	1.7	1.0	1.0	2.2	0.4	0.4	0.3	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	2.4	2.4	0.2	1.3	1.3	0.7	0.0	0.0	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.9	10.2	10.2	21.9	8.9	8.9	16.1	0.0	0.0	15.2	0.0	0.0
LnGrp LOS	C	B	B	C	A	A	B	A	A	B	A	A
Approach Vol, veh/h		1139			734			85			25	
Approach Delay, s/veh		10.7			9.4			16.1			15.2	
Approach LOS		B			A			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.9	24.7		10.8	6.8	23.9		10.8				
Change Period (Y+Rc), s	4.6	* 6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	5.2	* 31		29.0	6.6	29.0		29.0				
Max Q Clear Time (g_c+I1), s	2.6	12.1		2.5	3.1	7.7		4.1				
Green Ext Time (p_c), s	0.0	6.4		0.1	0.0	3.7		0.4				

Intersection Summary		
HCM 6th Ctrl Delay		10.5
HCM 6th LOS		B

Notes

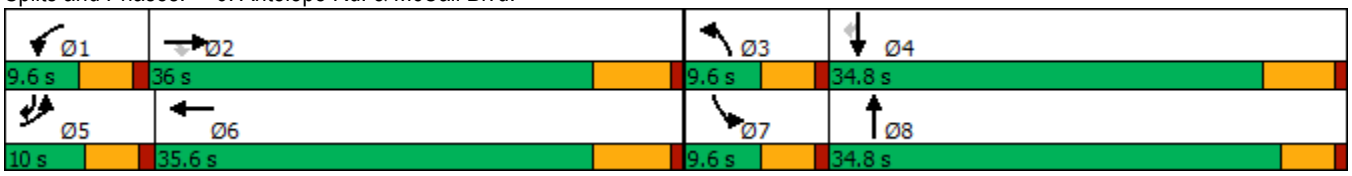
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	74	842	43	21	622	25	6	1	1	56
Future Volume (vph)	74	842	43	21	622	25	6	1	1	56
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA	pm+ov
Protected Phases	5	2		1	6	3	8	7	4	5
Permitted Phases			2							4
Detector Phase	5	2	2	1	6	3	8	7	4	5
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	35.2	35.2	9.6	35.2	9.6	33.6	9.6	34.8	9.6
Total Split (s)	10.0	36.0	36.0	9.6	35.6	9.6	34.8	9.6	34.8	10.0
Total Split (%)	11.1%	40.0%	40.0%	10.7%	39.6%	10.7%	38.7%	10.7%	38.7%	11.1%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6	5.8	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 41.5
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Antelope Rd. & McCall Blvd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	842	43	21	622	4	25	6	19	1	1	56
Future Volume (veh/h)	74	842	43	21	622	4	25	6	19	1	1	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	81	925	44	23	684	4	27	7	7	1	1	14
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	130	1411	629	50	1276	7	57	59	59	4	71	176
Arrive On Green	0.07	0.40	0.40	0.03	0.35	0.35	0.03	0.07	0.07	0.00	0.04	0.04
Sat Flow, veh/h	1781	3554	1585	1781	3622	21	1781	852	852	1781	1870	1585
Grp Volume(v), veh/h	81	925	44	23	336	352	27	0	14	1	1	14
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1867	1781	0	1704	1781	1870	1585
Q Serve(g_s), s	1.9	8.9	0.7	0.5	6.3	6.3	0.6	0.0	0.3	0.0	0.0	0.3
Cycle Q Clear(g_c), s	1.9	8.9	0.7	0.5	6.3	6.3	0.6	0.0	0.3	0.0	0.0	0.3
Prop In Lane	1.00		1.00	1.00		0.01	1.00		0.50	1.00		1.00
Lane Grp Cap(c), veh/h	130	1411	629	50	626	657	57	0	118	4	71	176
V/C Ratio(X)	0.62	0.66	0.07	0.46	0.54	0.54	0.47	0.00	0.12	0.24	0.01	0.08
Avail Cap(c_a), veh/h	229	2521	1124	212	1244	1306	212	0	1225	212	1291	1210
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.9	10.3	7.9	20.1	10.9	10.9	20.0	0.0	18.4	20.9	19.4	16.7
Incr Delay (d2), s/veh	1.8	0.5	0.0	2.4	0.7	0.7	2.2	0.0	0.4	10.2	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	2.1	0.2	0.2	1.7	1.8	0.3	0.0	0.1	0.0	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.8	10.9	7.9	22.6	11.6	11.5	22.2	0.0	18.8	31.1	19.5	16.9
LnGrp LOS	C	B	A	C	B	B	C	A	B	C	B	B
Approach Vol, veh/h		1050			711			41			16	
Approach Delay, s/veh		11.5			11.9			21.0			18.0	
Approach LOS		B			B			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.8	22.9	6.0	7.4	7.7	21.0	4.7	8.7
Change Period (Y+Rc), s	4.6	6.2	4.6	5.8	4.6	6.2	4.6	* 5.8
Max Green Setting (Gmax), s	5.0	29.8	5.0	29.0	5.4	29.4	5.0	* 30
Max Q Clear Time (g_c+I1), s	2.5	10.9	2.6	2.3	3.9	8.3	2.0	2.3
Green Ext Time (p_c), s	0.0	5.8	0.0	0.0	0.0	3.6	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	11.9
HCM 6th LOS	B

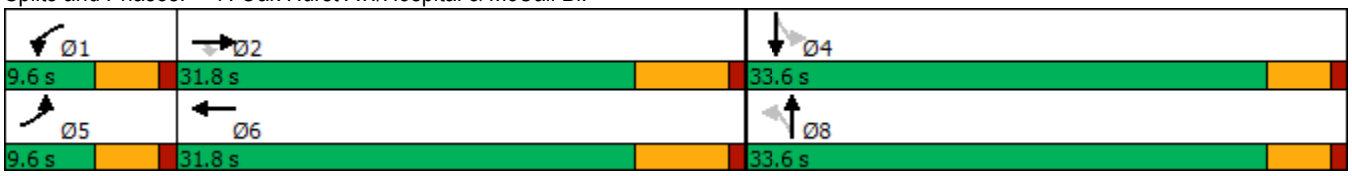
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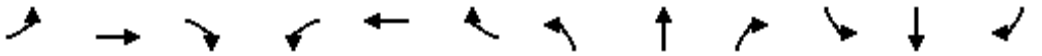
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	2	810	40	17	580	41	0	9	0
Future Volume (vph)	2	810	40	17	580	41	0	9	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2		1	6		8		4
Permitted Phases			2			8		4	
Detector Phase	5	2	2	1	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	23.2	23.2	9.6	23.2	33.6	33.6	14.6	14.6
Total Split (s)	9.6	31.8	31.8	9.6	31.8	33.6	33.6	33.6	33.6
Total Split (%)	12.8%	42.4%	42.4%	12.8%	42.4%	44.8%	44.8%	44.8%	44.8%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2		4.6		4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 36.5
Natural Cycle: 70
Control Type: Actuated-Uncoordinated

Splits and Phases: 7: Oak Hurst Av./Hospital & McCall Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	810	40	17	580	3	41	0	10	9	0	6
Future Volume (veh/h)	2	810	40	17	580	3	41	0	10	9	0	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	900	41	19	644	3	46	0	2	10	0	5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	5	1472	657	43	1581	7	352	5	6	258	30	55
Arrive On Green	0.00	0.41	0.41	0.02	0.44	0.44	0.11	0.00	0.11	0.11	0.00	0.11
Sat Flow, veh/h	1781	3554	1585	1781	3627	17	1343	42	60	753	280	517
Grp Volume(v), veh/h	2	900	41	19	315	332	48	0	0	15	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1867	1446	0	0	1550	0	0
Q Serve(g_s), s	0.0	6.7	0.5	0.4	4.1	4.1	0.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	6.7	0.5	0.4	4.1	4.1	1.0	0.0	0.0	0.3	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	0.96		0.04	0.67		0.33
Lane Grp Cap(c), veh/h	5	1472	657	43	774	814	363	0	0	343	0	0
V/C Ratio(X)	0.38	0.61	0.06	0.44	0.41	0.41	0.13	0.00	0.00	0.04	0.00	0.00
Avail Cap(c_a), veh/h	263	2683	1197	263	1342	1410	1424	0	0	1441	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	16.9	7.8	6.0	16.3	6.6	6.6	13.9	0.0	0.0	13.6	0.0	0.0
Incr Delay (d2), s/veh	16.0	0.4	0.0	2.6	0.3	0.3	0.2	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.1	0.1	0.1	0.7	0.7	0.3	0.0	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.9	8.2	6.0	18.9	6.9	6.9	14.1	0.0	0.0	13.7	0.0	0.0
LnGrp LOS	C	A	A	B	A	A	B	A	A	B	A	A
Approach Vol, veh/h		943			666			48			15	
Approach Delay, s/veh		8.2			7.2			14.1			13.7	
Approach LOS		A			A			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.4	20.2		8.2	4.7	21.0		8.2				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	5.0	25.6		29.0	5.0	25.6		29.0				
Max Q Clear Time (g_c+I1), s	2.4	8.7		2.3	2.0	6.1		3.0				
Green Ext Time (p_c), s	0.0	5.3		0.0	0.0	3.3		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		8.0	
HCM 6th LOS		A	

Intersection	
Int Delay, s/veh	3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	27	10	25	47	7	17
Future Vol, veh/h	27	10	25	47	7	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	36	13	33	63	9	23

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	106	65	0	0	96	0
Stage 1	65	-	-	-	-	-
Stage 2	41	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	892	999	-	-	1498	-
Stage 1	958	-	-	-	-	-
Stage 2	981	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	887	999	-	-	1498	-
Mov Cap-2 Maneuver	887	-	-	-	-	-
Stage 1	958	-	-	-	-	-
Stage 2	975	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.2	0	2.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	915	1498	-
HCM Lane V/C Ratio	-	-	0.054	0.006	-
HCM Control Delay (s)	-	-	9.2	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

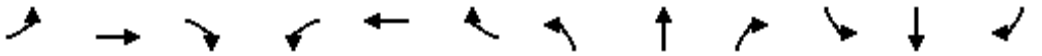
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	71	758	3	566	8	3	0	5	0
Future Volume (vph)	71	758	3	566	8	3	0	5	0
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2	1	6			8		4
Permitted Phases					6	8		4	
Detector Phase	5	2	1	6	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	23.2	9.6	23.2	23.2	22.6	22.6	33.6	33.6
Total Split (s)	10.4	46.8	9.6	46.0	46.0	33.6	33.6	33.6	33.6
Total Split (%)	11.6%	52.0%	10.7%	51.1%	51.1%	37.3%	37.3%	37.3%	37.3%
Yellow Time (s)	3.6	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	6.2		4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 50.4
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 9: Junipero Rd. & McCall Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	758	3	3	566	8	3	0	0	5	0	47
Future Volume (veh/h)	71	758	3	3	566	8	3	0	0	5	0	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	76	806	3	3	602	8	3	0	0	5	0	26
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	127	1002	4	7	1673	746	263	0	0	293	0	121
Arrive On Green	0.07	0.54	0.54	0.00	0.47	0.47	0.08	0.00	0.00	0.08	0.00	0.08
Sat Flow, veh/h	1781	1862	7	1781	3554	1585	1101	0	0	1418	0	1583
Grp Volume(v), veh/h	76	0	809	3	602	8	3	0	0	5	0	26
Grp Sat Flow(s),veh/h/ln	1781	0	1869	1781	1777	1585	1102	0	0	1418	0	1583
Q Serve(g_s), s	1.7	0.0	14.2	0.1	4.4	0.1	0.1	0.0	0.0	0.0	0.0	0.6
Cycle Q Clear(g_c), s	1.7	0.0	14.2	0.1	4.4	0.1	0.7	0.0	0.0	0.1	0.0	0.6
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	127	0	1005	7	1673	746	263	0	0	293	0	121
V/C Ratio(X)	0.60	0.00	0.80	0.41	0.36	0.01	0.01	0.00	0.00	0.02	0.00	0.21
Avail Cap(c_a), veh/h	256	0	1881	221	3505	1563	1149	0	0	1203	0	1138
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.2	0.0	7.6	20.0	6.8	5.7	17.8	0.0	0.0	17.3	0.0	17.5
Incr Delay (d2), s/veh	1.7	0.0	1.6	13.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	2.4	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.9	0.0	9.2	33.2	6.9	5.7	17.8	0.0	0.0	17.3	0.0	18.4
LnGrp LOS	B	A	A	C	A	A	B	A	A	B	A	B
Approach Vol, veh/h		885			613			3			31	
Approach Delay, s/veh		10.1			7.0			17.8			18.2	
Approach LOS		B			A			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.8	27.9		7.7	7.5	25.2		7.7				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	5.0	40.6		29.0	5.8	39.8		29.0				
Max Q Clear Time (g_c+I1), s	2.1	16.2		2.6	3.7	6.4		2.7				
Green Ext Time (p_c), s	0.0	5.5		0.1	0.0	3.9		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		9.0	
HCM 6th LOS		A	

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	8	46	19	15	6	18	0	11	5	0	3
Future Vol, veh/h	1	8	46	19	15	6	18	0	11	5	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	53	53	53	53	53	53	53	53	53	53	53	53
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	15	87	36	28	11	34	0	21	9	0	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	39	0	0	102	0	0	172	174	59	179	212	34
Stage 1	-	-	-	-	-	-	63	63	-	106	106	-
Stage 2	-	-	-	-	-	-	109	111	-	73	106	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1571	-	-	1490	-	-	791	719	1007	783	685	1039
Stage 1	-	-	-	-	-	-	948	842	-	900	807	-
Stage 2	-	-	-	-	-	-	896	804	-	937	807	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1571	-	-	1490	-	-	771	700	1007	752	667	1039
Mov Cap-2 Maneuver	-	-	-	-	-	-	771	700	-	752	667	-
Stage 1	-	-	-	-	-	-	947	841	-	899	787	-
Stage 2	-	-	-	-	-	-	869	784	-	917	806	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	3.6	9.5	9.4
HCM LOS			A	A

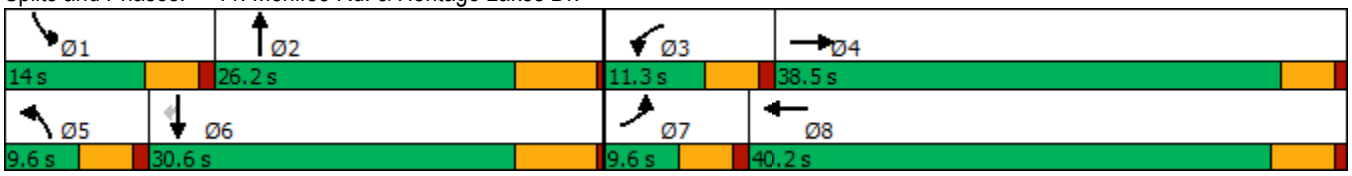
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	846	1571	-	-	1490	-	-	839
HCM Lane V/C Ratio	0.065	0.001	-	-	0.024	-	-	0.018
HCM Control Delay (s)	9.5	7.3	0	-	7.5	0	-	9.4
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0.1

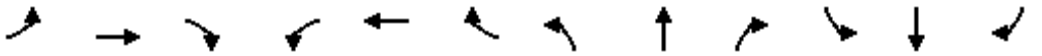
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	15	6	46	8	23	378	94	421	21
Future Volume (vph)	15	6	46	8	23	378	94	421	21
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2	1	6	
Permitted Phases									6
Detector Phase	7	4	3	8	5	2	1	6	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	14.6	9.6	40.2	9.6	26.0	9.6	26.0	26.0
Total Split (s)	9.6	38.5	11.3	40.2	9.6	26.2	14.0	30.6	30.6
Total Split (%)	10.7%	42.8%	12.6%	44.7%	10.7%	29.1%	15.6%	34.0%	34.0%
Yellow Time (s)	3.6	3.6	3.6	4.2	3.6	5.5	3.6	5.5	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	0.5	1.0	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	5.2	4.6	6.0	4.6	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 37.4
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 11: Menifee Rd. & Heritage Lakes Dr.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	6	3	46	8	40	23	378	58	94	421	21
Future Volume (veh/h)	15	6	3	46	8	40	23	378	58	94	421	21
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	16	6	3	48	8	13	24	394	56	98	439	21
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	37	28	14	94	36	59	53	1235	171	154	1173	523
Arrive On Green	0.02	0.02	0.02	0.05	0.06	0.06	0.03	0.27	0.27	0.09	0.33	0.33
Sat Flow, veh/h	1781	1176	588	1781	641	1042	1781	4519	626	1781	3554	1585
Grp Volume(v), veh/h	16	0	9	48	0	21	24	294	156	98	439	21
Grp Sat Flow(s),veh/h/ln	1781	0	1764	1781	0	1683	1781	1702	1741	1781	1777	1585
Q Serve(g_s), s	0.3	0.0	0.2	0.9	0.0	0.4	0.5	2.5	2.6	1.9	3.4	0.3
Cycle Q Clear(g_c), s	0.3	0.0	0.2	0.9	0.0	0.4	0.5	2.5	2.6	1.9	3.4	0.3
Prop In Lane	1.00		0.33	1.00		0.62	1.00		0.36	1.00		1.00
Lane Grp Cap(c), veh/h	37	0	42	94	0	95	53	930	476	154	1173	523
V/C Ratio(X)	0.44	0.00	0.21	0.51	0.00	0.22	0.45	0.32	0.33	0.64	0.37	0.04
Avail Cap(c_a), veh/h	246	0	1652	330	0	1627	246	1899	972	462	2415	1077
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.5	0.0	17.3	16.7	0.0	16.3	17.3	10.5	10.5	16.0	9.3	8.2
Incr Delay (d2), s/veh	3.0	0.0	2.5	1.6	0.0	1.2	2.3	0.2	0.4	1.6	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.1	0.4	0.0	0.2	0.2	0.6	0.6	0.6	0.7	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.6	0.0	19.8	18.3	0.0	17.5	19.5	10.7	10.9	17.6	9.5	8.3
LnGrp LOS	C	A	B	B	A	B	B	B	B	B	A	A
Approach Vol, veh/h		25			69			474			558	
Approach Delay, s/veh		20.3			18.0			11.2			10.8	
Approach LOS		C			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.7	15.9	6.5	6.1	5.7	18.0	5.3	7.2
Change Period (Y+Rc), s	4.6	6.0	4.6	* 5.2	4.6	6.0	4.6	5.2
Max Green Setting (Gmax), s	9.4	20.2	6.7	* 34	5.0	24.6	5.0	35.0
Max Q Clear Time (g_c+I1), s	3.9	4.6	2.9	2.2	2.5	5.4	2.3	2.4
Green Ext Time (p_c), s	0.0	2.1	0.0	0.0	0.0	2.4	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	11.6
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	16	0	459	470	12
Future Vol, veh/h	0	16	0	459	470	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	17	0	499	511	13

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	262	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-	-
Pot Cap-1 Maneuver	0	628	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	628	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.9	0	0
HCM LOS	B		

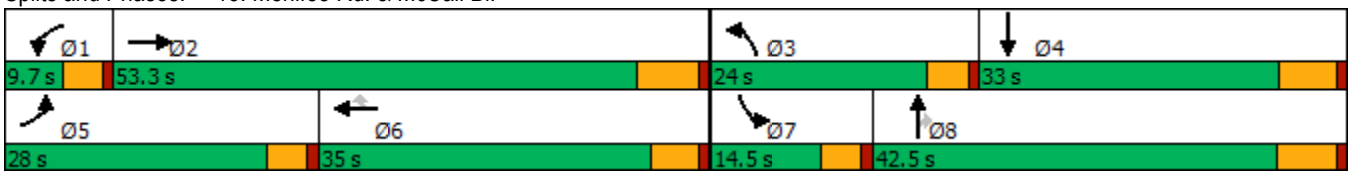
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	628	-	-
HCM Lane V/C Ratio	-	0.028	-	-
HCM Control Delay (s)	-	10.9	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-

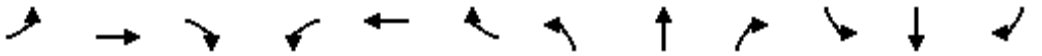
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	184	370	47	240	46	147	229	56	62	258
Future Volume (vph)	184	370	47	240	46	147	229	56	62	258
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	5	2	1	6		3	8		7	4
Permitted Phases					6			8		
Detector Phase	5	2	1	6	6	3	8	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	33.5	9.6	33.5	33.5	9.6	42.5	42.5	9.6	16.5
Total Split (s)	28.0	53.3	9.7	35.0	35.0	24.0	42.5	42.5	14.5	33.0
Total Split (%)	23.3%	44.4%	8.1%	29.2%	29.2%	20.0%	35.4%	35.4%	12.1%	27.5%
Yellow Time (s)	3.6	5.5	3.6	4.4	4.4	3.6	5.5	5.5	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.5	4.6	5.4	5.4	4.6	6.5	6.5	4.6	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 76.8
Natural Cycle: 100
Control Type: Actuated-Uncoordinated

Splits and Phases: 13: Menifee Rd. & McCall Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	184	370	218	47	240	46	147	229	56	62	258	166
Future Volume (veh/h)	184	370	218	47	240	46	147	229	56	62	258	166
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			Yes			Yes	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1859	1859	1859
Adj Flow Rate, veh/h	198	398	193	51	258	25	158	246	26	67	277	77
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	250	621	297	169	623	278	203	828	364	102	485	132
Arrive On Green	0.14	0.27	0.27	0.05	0.18	0.18	0.11	0.23	0.23	0.06	0.18	0.18
Sat Flow, veh/h	1781	2330	1115	3456	3554	1585	1781	3554	1565	1771	2743	748
Grp Volume(v), veh/h	198	302	289	51	258	25	158	246	26	67	176	178
Grp Sat Flow(s),veh/h/ln	1781	1777	1668	1728	1777	1585	1781	1777	1565	1771	1766	1724
Q Serve(g_s), s	6.1	8.5	8.6	0.8	3.6	0.7	4.9	3.2	0.7	2.1	5.1	5.3
Cycle Q Clear(g_c), s	6.1	8.5	8.6	0.8	3.6	0.7	4.9	3.2	0.7	2.1	5.1	5.3
Prop In Lane	1.00		0.67	1.00		1.00	1.00		1.00	1.00		0.43
Lane Grp Cap(c), veh/h	250	474	445	169	623	278	203	828	364	102	312	305
V/C Ratio(X)	0.79	0.64	0.65	0.30	0.41	0.09	0.78	0.30	0.07	0.66	0.57	0.58
Avail Cap(c_a), veh/h	740	1476	1385	313	1867	833	613	2270	1000	311	840	820
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.4	18.3	18.3	25.9	20.7	19.5	24.3	17.8	16.9	26.0	21.2	21.3
Incr Delay (d2), s/veh	2.2	1.4	1.6	0.4	0.4	0.1	2.5	0.2	0.1	2.7	1.6	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	3.0	2.9	0.3	1.4	0.2	1.8	1.1	0.2	0.8	1.9	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.6	19.7	19.9	26.2	21.1	19.6	26.7	18.0	16.9	28.7	22.8	23.0
LnGrp LOS	C	B	B	C	C	B	C	B	B	C	C	C
Approach Vol, veh/h		789			334			430			421	
Approach Delay, s/veh		21.3			21.8			21.2			23.8	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.3	21.5	11.0	16.5	12.5	16.4	7.8	19.6
Change Period (Y+Rc), s	4.6	6.5	4.6	* 6.5	4.6	* 6.5	4.6	6.5
Max Green Setting (Gmax), s	5.1	46.8	19.4	* 27	23.4	* 30	9.9	36.0
Max Q Clear Time (g_c+I1), s	2.8	10.6	6.9	7.3	8.1	5.6	4.1	5.2
Green Ext Time (p_c), s	0.0	3.4	0.1	1.6	0.2	1.6	0.0	1.4

Intersection Summary	
HCM 6th Ctrl Delay	21.9
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

APPENDIX 5.2: E+P CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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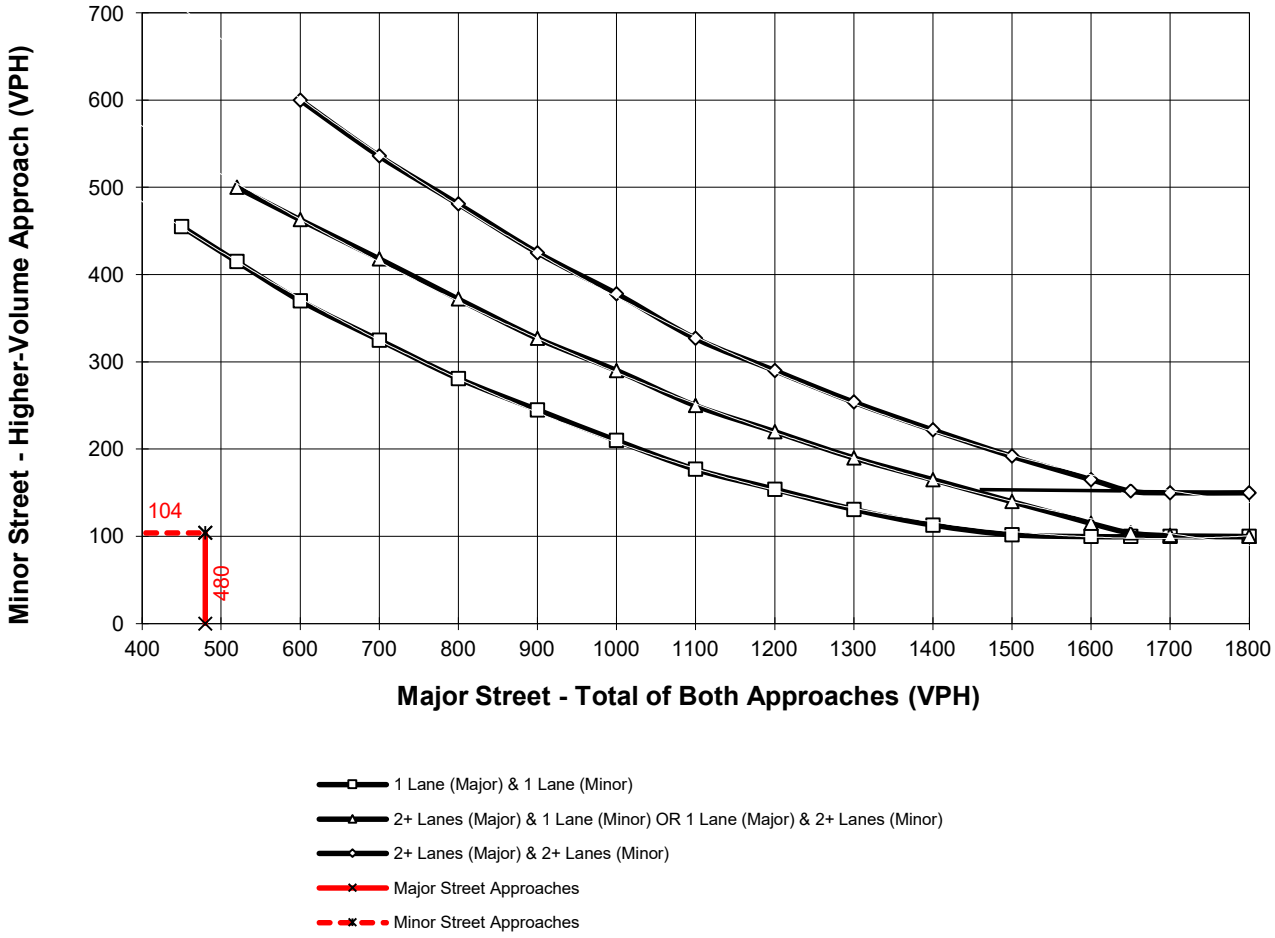
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **E+P Conditions - Weekday AM Peak Hour**

Major Street Name = **Junipero Rd.**
Total of Both Approaches (VPH) = **480**
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Heritage Lakes Dr.**
High Volume Approach (VPH) = **104**
Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

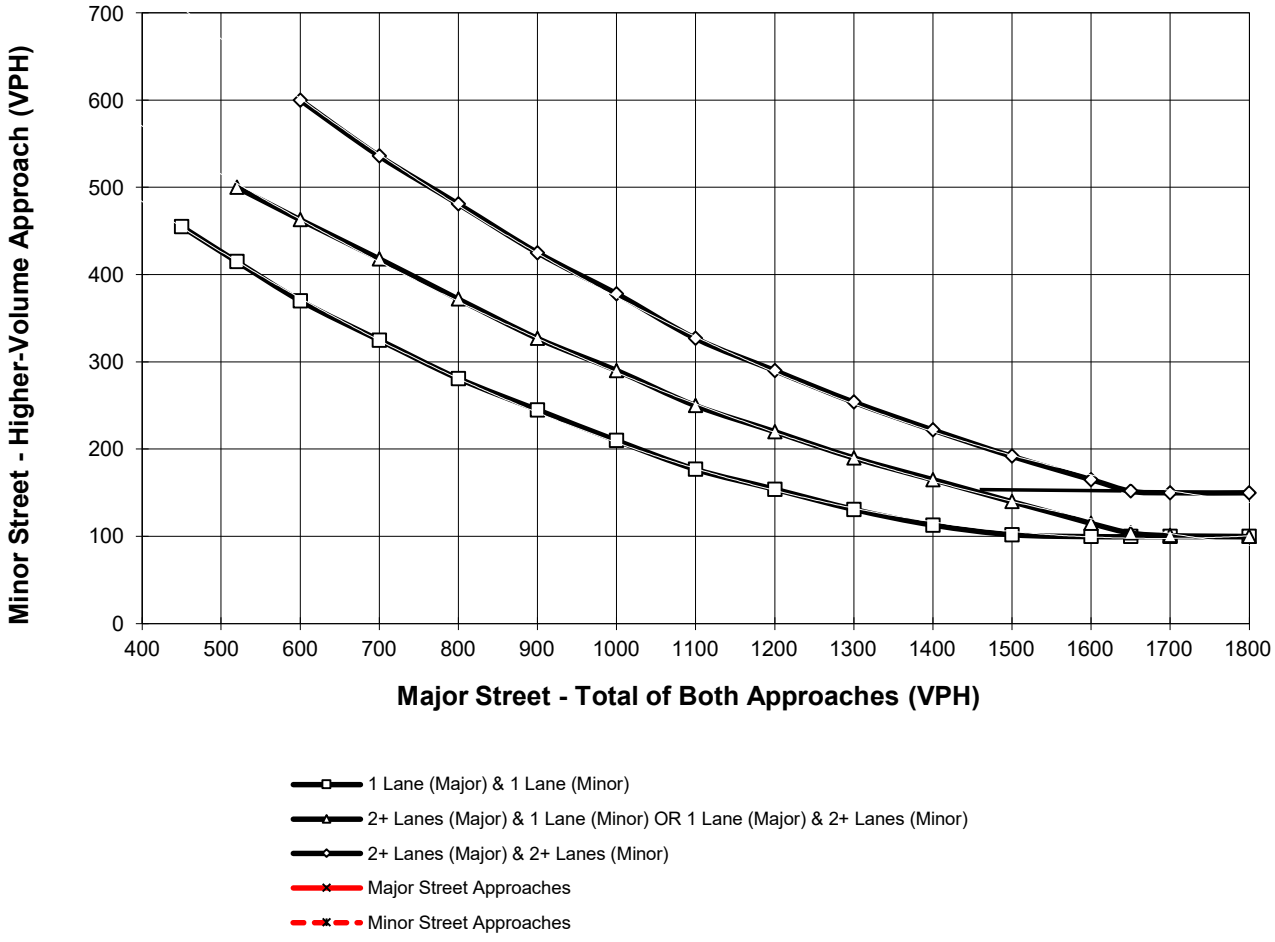
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **Existing (2022) Conditions - Weekday AM Peak Hour**

Major Street Name = **Heritage Lakes Dr.** Total of Both Approaches (VPH) = **150**
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Settlement St./Driveway 1** High Volume Approach (VPH) = **47**
Number of Approach Lanes On Minor Street = **1**

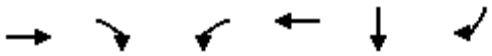
SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

APPENDIX 5.3: E+P CONDITIONS FREEWAY OFF- PEAK HOUR QUEUING ANALYSIS WORKSHEETS

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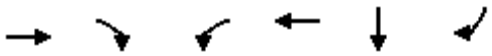
Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	689	408	515	805	210	253
v/c Ratio	0.57	0.50	0.88	0.32	0.64	0.50
Control Delay	30.0	5.3	36.0	13.6	46.8	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.0	5.3	36.0	13.6	46.8	8.3
Queue Length 50th (ft)	188	0	315	223	124	1
Queue Length 95th (ft)	270	71	416	272	203	66
Internal Link Dist (ft)	508			655	1385	
Turn Bay Length (ft)			230			455
Base Capacity (vph)	1210	810	699	2506	330	508
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.50	0.74	0.32	0.64	0.50

Intersection Summary



Lane Group	EBL	EBT	WBT	WBR	NBT	NBR
Lane Group Flow (vph)	249	678	1150	429	212	247
v/c Ratio	0.79	0.28	0.68	0.44	0.59	0.49
Control Delay	56.1	0.4	23.3	3.4	43.4	8.1
Queue Delay	0.0	0.0	0.6	0.0	0.0	0.0
Total Delay	56.1	0.4	23.9	3.4	43.4	8.1
Queue Length 50th (ft)	105	1	287	0	123	0
Queue Length 95th (ft)	176	2	406	55	199	64
Internal Link Dist (ft)		655	468		1818	
Turn Bay Length (ft)	260					240
Base Capacity (vph)	415	2447	1695	971	362	505
Starvation Cap Reductn	0	0	211	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.28	0.77	0.44	0.59	0.49

Intersection Summary



Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	870	377	313	890	374	493
v/c Ratio	0.71	0.48	0.86	0.43	0.65	0.80
Control Delay	32.7	5.0	49.1	13.8	35.2	32.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.7	5.0	49.1	13.8	35.2	32.5
Queue Length 50th (ft)	258	0	188	216	202	205
Queue Length 95th (ft)	333	63	#318	264	305	#374
Internal Link Dist (ft)	508			655	1385	
Turn Bay Length (ft)			230			455
Base Capacity (vph)	1228	782	402	2090	575	618
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.48	0.78	0.43	0.65	0.80

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBT	WBR	NBT	NBR
Lane Group Flow (vph)	303	955	809	211	406	529
v/c Ratio	0.85	0.48	0.69	0.32	0.66	0.85
Control Delay	43.1	4.6	33.5	5.3	33.9	38.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.1	4.6	33.5	5.3	33.9	38.2
Queue Length 50th (ft)	123	11	238	0	217	249
Queue Length 95th (ft)	m#240	31	317	52	324	#440
Internal Link Dist (ft)		655	468		1818	
Turn Bay Length (ft)	260					240
Base Capacity (vph)	415	1999	1180	655	616	622
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.48	0.69	0.32	0.66	0.85

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

APPENDIX 6.1: OPENING YEAR CUMULATIVE (2025) WITHOUT PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

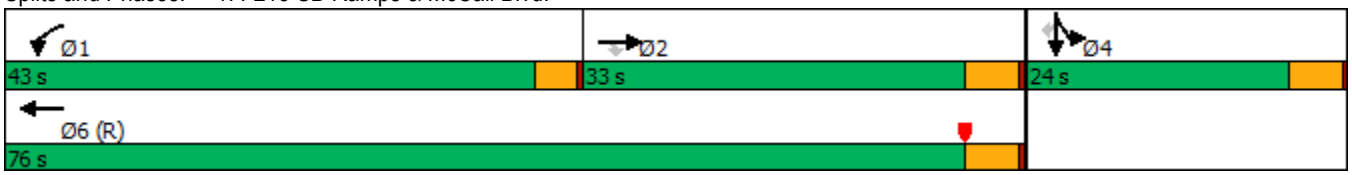
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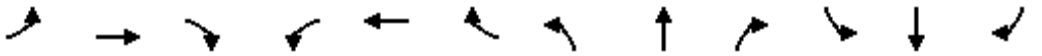
Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	889	437	644	1070	1	269
Future Volume (vph)	889	437	644	1070	1	269
Turn Type	NA	Perm	Prot	NA	NA	Perm
Protected Phases	2		1	6	4	
Permitted Phases		2				4
Detector Phase	2	2	1	6	4	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.0	22.0	9.0	20.0	20.0	20.0
Total Split (s)	33.0	33.0	43.0	76.0	24.0	24.0
Total Split (%)	33.0%	33.0%	43.0%	76.0%	24.0%	24.0%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	3.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	None	None	None	C-Max	Max	Max

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 61 (61%), Referenced to phase 6:WBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 1: I-215 SB Ramps & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	889	437	644	1070	0	0	0	0	277	1	269
Future Volume (veh/h)	0	889	437	644	1070	0	0	0	0	277	1	269
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1841	1885	1870	1856	0				1796	1900	1856
Adj Flow Rate, veh/h	0	916	0	664	1103	0				286	1	120
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	4	1	2	3	0				7	0	3
Cap, veh/h	0	1018		693	2521	0				352	1	307
Arrive On Green	0.00	0.29	0.00	0.26	0.48	0.00				0.19	0.19	0.19
Sat Flow, veh/h	0	3589	1598	1781	3618	0				1804	6	1572
Grp Volume(v), veh/h	0	916	0	664	1103	0				287	0	120
Grp Sat Flow(s),veh/h/ln	0	1749	1598	1781	1763	0				1810	0	1572
Q Serve(g_s), s	0.0	25.2	0.0	36.7	20.6	0.0				15.2	0.0	6.7
Cycle Q Clear(g_c), s	0.0	25.2	0.0	36.7	20.6	0.0				15.2	0.0	6.7
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1018		693	2521	0				353	0	307
V/C Ratio(X)	0.00	0.90		0.96	0.44	0.00				0.81	0.00	0.39
Avail Cap(c_a), veh/h	0	1018		704	2521	0				353	0	307
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.26	0.26	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	34.0	0.0	36.2	12.8	0.0				38.5	0.0	35.1
Incr Delay (d2), s/veh	0.0	10.5	0.0	9.4	0.1	0.0				18.2	0.0	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	11.5	0.0	17.9	8.5	0.0				8.2	0.0	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	44.5	0.0	45.5	12.9	0.0				56.8	0.0	38.8
LnGrp LOS	A	D		D	B	A				E	A	D
Approach Vol, veh/h		916			1767						407	
Approach Delay, s/veh		44.5			25.2						51.5	
Approach LOS		D			C						D	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	42.4	33.6		24.0		76.0
Change Period (Y+Rc), s	3.5	4.5		4.5		4.5
Max Green Setting (Gmax), s	39.5	28.5		19.5		71.5
Max Q Clear Time (g_c+I1), s	38.7	27.2		17.2		22.6
Green Ext Time (p_c), s	0.1	0.6		0.3		5.4

Intersection Summary		
HCM 6th Ctrl Delay		34.4
HCM 6th LOS		C

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBT	WBR	NBT	NBR
Lane Configurations						
Traffic Volume (vph)	268	859	1429	495	0	298
Future Volume (vph)	268	859	1429	495	0	298
Turn Type	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	6		8	
Permitted Phases				6		8
Detector Phase	5	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	8.5	22.0	20.0	20.0	20.0	20.0
Total Split (s)	27.9	75.0	47.1	47.1	25.0	25.0
Total Split (%)	27.9%	75.0%	47.1%	47.1%	25.0%	25.0%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	Max	Max

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 2: I-215 NB Ramps & McCall Blvd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	268	859	0	0	1429	495	220	0	298	0	0	0
Future Volume (veh/h)	268	859	0	0	1429	495	220	0	298	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1811	1841	0	0	1856	1870	1870	1900	1796			
Adj Flow Rate, veh/h	285	914	0	0	1520	0	234	0	178			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	6	4	0	0	3	2	2	0	7			
Cap, veh/h	317	2466	0	0	1714		371	0	312			
Arrive On Green	0.18	0.70	0.00	0.00	0.49	0.00	0.20	0.00	0.20			
Sat Flow, veh/h	1725	3589	0	0	3618	1585	1810	0	1522			
Grp Volume(v), veh/h	285	914	0	0	1520	0	234	0	178			
Grp Sat Flow(s),veh/h/ln	1725	1749	0	0	1763	1585	1810	0	1522			
Q Serve(g_s), s	16.2	10.4	0.0	0.0	38.9	0.0	11.8	0.0	10.5			
Cycle Q Clear(g_c), s	16.2	10.4	0.0	0.0	38.9	0.0	11.8	0.0	10.5			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	317	2466	0	0	1714		371	0	312			
V/C Ratio(X)	0.90	0.37	0.00	0.00	0.89		0.63	0.00	0.57			
Avail Cap(c_a), veh/h	421	2466	0	0	1714		371	0	312			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.31	0.31	0.00	0.00	0.09	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	39.9	5.9	0.0	0.0	23.2	0.0	36.3	0.0	35.8			
Incr Delay (d2), s/veh	5.7	0.1	0.0	0.0	0.7	0.0	7.9	0.0	7.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	7.0	2.9	0.0	0.0	14.5	0.0	5.8	0.0	4.4			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.6	6.0	0.0	0.0	23.9	0.0	44.2	0.0	43.2			
LnGrp LOS	D	A	A	A	C		D	A	D			
Approach Vol, veh/h		1199			1520			412				
Approach Delay, s/veh		15.4			23.9			43.8				
Approach LOS		B			C			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		75.0			21.9	53.1		25.0				
Change Period (Y+Rc), s		4.5			3.5	4.5		4.5				
Max Green Setting (Gmax), s		70.5			24.4	42.6		20.5				
Max Q Clear Time (g_c+I1), s		12.4			18.2	40.9		13.8				
Green Ext Time (p_c), s		4.2			0.2	1.2		1.0				

Intersection Summary	
HCM 6th Ctrl Delay	23.3
HCM 6th LOS	C

Notes

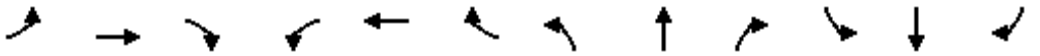
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	189	878	69	1514	185	37	67	33	25
Future Volume (vph)	189	878	69	1514	185	37	67	33	25
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA
Protected Phases	5	2	1	6		8			4
Permitted Phases					8		8	4	
Detector Phase	5	2	1	6	8	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	31.0	9.5	31.0	33.0	33.0	33.0	20.0	20.0
Total Split (s)	18.0	55.4	11.6	49.0	33.0	33.0	33.0	33.0	33.0
Total Split (%)	18.0%	55.4%	11.6%	49.0%	33.0%	33.0%	33.0%	33.0%	33.0%
Yellow Time (s)	3.5	5.0	3.5	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	4.5	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 93.3
Natural Cycle: 100
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Encanto Dr. & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	189	878	102	69	1514	33	185	37	67	33	25	247
Future Volume (veh/h)	189	878	102	69	1514	33	185	37	67	33	25	247
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.99	0.99		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	197	915	95	72	1577	34	193	39	37	34	26	215
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	228	1652	172	92	1541	33	237	509	427	409	47	391
Arrive On Green	0.13	0.51	0.51	0.05	0.43	0.43	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1781	3241	337	1781	3557	77	1139	1870	1568	1311	174	1438
Grp Volume(v), veh/h	197	502	508	72	787	824	193	39	37	34	0	241
Grp Sat Flow(s),veh/h/ln	1781	1777	1801	1781	1777	1856	1139	1870	1568	1311	0	1612
Q Serve(g_s), s	10.8	19.1	19.1	4.0	43.0	43.0	14.3	1.5	1.7	2.0	0.0	12.7
Cycle Q Clear(g_c), s	10.8	19.1	19.1	4.0	43.0	43.0	27.0	1.5	1.7	3.5	0.0	12.7
Prop In Lane	1.00		0.19	1.00		0.04	1.00		1.00	1.00		0.89
Lane Grp Cap(c), veh/h	228	906	918	92	770	805	237	509	427	409	0	439
V/C Ratio(X)	0.86	0.55	0.55	0.78	1.02	1.02	0.82	0.08	0.09	0.08	0.00	0.55
Avail Cap(c_a), veh/h	242	906	918	127	770	805	237	509	427	409	0	439
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.4	16.6	16.6	46.5	28.1	28.1	43.5	26.8	26.9	28.1	0.0	30.9
Incr Delay (d2), s/veh	23.5	0.4	0.4	12.2	38.0	38.2	18.2	0.0	0.0	0.0	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	7.1	7.2	2.0	24.5	25.6	6.0	0.7	0.7	0.6	0.0	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.9	17.1	17.1	58.7	66.1	66.3	61.7	26.9	27.0	28.2	0.0	31.8
LnGrp LOS	E	B	B	E	F	F	E	C	C	C	A	C
Approach Vol, veh/h		1207			1683			269			275	
Approach Delay, s/veh		25.0			65.9			51.9			31.3	
Approach LOS		C			E			D			C	

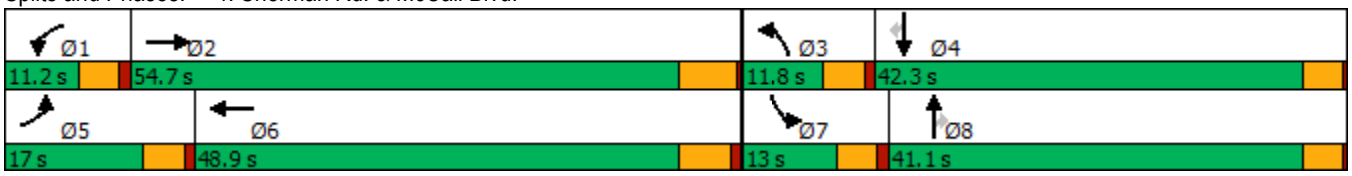
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.6	56.6		33.0	17.2	49.0		33.0				
Change Period (Y+Rc), s	4.5	6.0		6.0	4.5	6.0		6.0				
Max Green Setting (Gmax), s	7.1	49.4		27.0	13.5	43.0		27.0				
Max Q Clear Time (g_c+I1), s	6.0	21.1		14.7	12.8	45.0		29.0				
Green Ext Time (p_c), s	0.0	3.9		0.8	0.0	0.0		0.0				

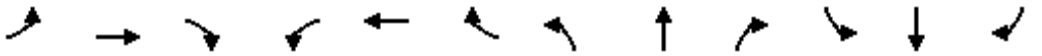
Intersection Summary			
HCM 6th Ctrl Delay		47.6	
HCM 6th LOS		D	

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	204	728	44	1334	102	44	22	160	49	239
Future Volume (vph)	204	728	44	1334	102	44	22	160	49	239
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2	1	6	3	8		7	4	
Permitted Phases							8			4
Detector Phase	5	2	1	6	3	8	8	7	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	38.7	9.6	38.8	9.6	41.1	41.1	9.6	41.1	41.1
Total Split (s)	17.0	54.7	11.2	48.9	11.8	41.1	41.1	13.0	42.3	42.3
Total Split (%)	14.2%	45.6%	9.3%	40.8%	9.8%	34.3%	34.3%	10.8%	35.3%	35.3%
Yellow Time (s)	3.6	5.2	3.6	4.8	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	0.5	1.0	1.0	1.0	0.5	0.5	1.0	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.7	4.6	5.8	4.6	4.1	4.1	4.6	4.1	4.1
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 99
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 4: Sherman Rd. & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	204	728	53	44	1334	112	102	44	22	160	49	239
Future Volume (veh/h)	204	728	53	44	1334	112	102	44	22	160	49	239
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.96	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	219	783	53	47	1434	114	110	47	19	172	53	195
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	229	1815	123	66	1488	118	133	262	213	155	286	241
Arrive On Green	0.13	0.54	0.54	0.04	0.45	0.45	0.07	0.14	0.14	0.09	0.15	0.15
Sat Flow, veh/h	1781	3377	229	1781	3336	264	1781	1870	1518	1781	1870	1582
Grp Volume(v), veh/h	219	412	424	47	761	787	110	47	19	172	53	195
Grp Sat Flow(s),veh/h/ln	1781	1777	1829	1781	1777	1823	1781	1870	1518	1781	1870	1582
Q Serve(g_s), s	11.8	13.5	13.5	2.5	40.0	40.6	5.9	2.1	1.1	8.4	2.4	11.5
Cycle Q Clear(g_c), s	11.8	13.5	13.5	2.5	40.0	40.6	5.9	2.1	1.1	8.4	2.4	11.5
Prop In Lane	1.00		0.12	1.00		0.14	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	229	955	983	66	793	813	133	262	213	155	286	241
V/C Ratio(X)	0.96	0.43	0.43	0.71	0.96	0.97	0.83	0.18	0.09	1.11	0.19	0.81
Avail Cap(c_a), veh/h	229	955	983	122	794	815	133	718	582	155	741	627
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.7	13.4	13.4	45.9	25.9	26.0	44.0	36.6	36.1	44.0	35.6	39.5
Incr Delay (d2), s/veh	46.8	0.3	0.3	5.2	22.5	23.9	31.4	0.3	0.2	104.3	0.3	6.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	4.8	5.0	1.2	20.0	21.0	3.8	1.0	0.4	8.2	1.1	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	88.5	13.7	13.7	51.1	48.4	50.0	75.5	36.9	36.3	148.3	35.9	45.8
LnGrp LOS	F	B	B	D	D	D	E	D	D	F	D	D
Approach Vol, veh/h		1055			1595			176			420	
Approach Delay, s/veh		29.3			49.3			60.9			86.5	
Approach LOS		C			D			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.2	57.6	11.8	18.8	17.0	48.8	13.0	17.6
Change Period (Y+Rc), s	4.6	* 5.8	4.6	4.1	4.6	5.8	4.6	4.1
Max Green Setting (Gmax), s	6.6	* 49	7.2	38.2	12.4	43.1	8.4	37.0
Max Q Clear Time (g_c+I1), s	4.5	15.5	7.9	13.5	13.8	42.6	10.4	4.1
Green Ext Time (p_c), s	0.0	5.3	0.0	0.9	0.0	0.4	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	48.2
HCM 6th LOS	D

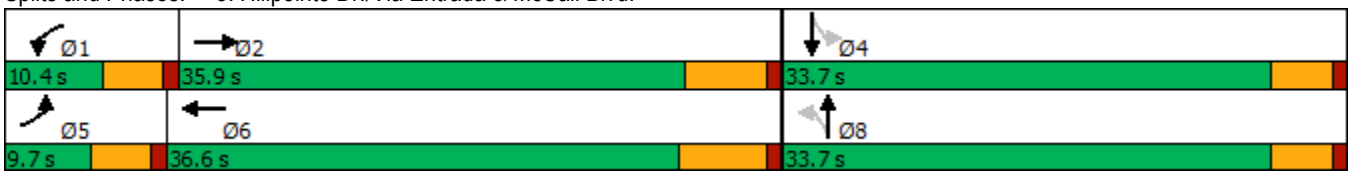
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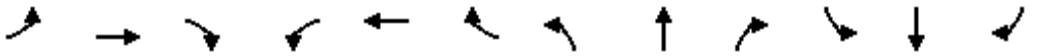
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	14	930	29	1445	106	3	32	16
Future Volume (vph)	14	930	29	1445	106	3	32	16
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases					8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	22.8	9.6	23.2	33.6	33.6	33.6	33.6
Total Split (s)	9.7	35.9	10.4	36.6	33.7	33.7	33.7	33.7
Total Split (%)	12.1%	44.9%	13.0%	45.8%	42.1%	42.1%	42.1%	42.1%
Yellow Time (s)	3.6	4.8	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.6	5.8	4.6	6.2		4.6		4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 56.2
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 5: Hillpointe Dr./Via Entrada & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	930	32	29	1445	23	106	3	37	32	16	47
Future Volume (veh/h)	14	930	32	29	1445	23	106	3	37	32	16	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	15	1000	30	31	1554	20	114	3	21	34	17	22
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	33	1779	53	62	1871	24	317	17	37	195	98	83
Arrive On Green	0.02	0.50	0.50	0.03	0.52	0.52	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1781	3523	106	1781	3593	46	1156	106	226	570	592	501
Grp Volume(v), veh/h	15	504	526	31	768	806	138	0	0	73	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1851	1781	1777	1862	1488	0	0	1663	0	0
Q Serve(g_s), s	0.4	10.3	10.3	0.9	19.0	19.1	2.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.4	10.3	10.3	0.9	19.0	19.1	4.2	0.0	0.0	1.9	0.0	0.0
Prop In Lane	1.00		0.06	1.00		0.02	0.83		0.15	0.47		0.30
Lane Grp Cap(c), veh/h	33	897	935	62	926	970	372	0	0	376	0	0
V/C Ratio(X)	0.45	0.56	0.56	0.50	0.83	0.83	0.37	0.00	0.00	0.19	0.00	0.00
Avail Cap(c_a), veh/h	174	1024	1067	198	1034	1084	921	0	0	978	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	25.4	8.9	8.9	24.8	10.6	10.6	19.8	0.0	0.0	19.0	0.0	0.0
Incr Delay (d2), s/veh	3.5	0.6	0.5	2.3	5.3	5.1	0.6	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.7	2.8	0.4	5.6	5.9	1.5	0.0	0.0	0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.9	9.5	9.5	27.1	15.8	15.7	20.4	0.0	0.0	19.2	0.0	0.0
LnGrp LOS	C	A	A	C	B	B	C	A	A	B	A	A
Approach Vol, veh/h		1045			1605			138			73	
Approach Delay, s/veh		9.8			16.0			20.4			19.2	
Approach LOS		A			B			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.4	32.6		13.2	5.6	33.4		13.2				
Change Period (Y+Rc), s	4.6	* 6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	5.8	* 30		29.1	5.1	30.4		29.1				
Max Q Clear Time (g_c+I1), s	2.9	12.3		3.9	2.4	21.1		6.2				
Green Ext Time (p_c), s	0.0	5.8		0.3	0.0	6.1		0.8				

Intersection Summary		
HCM 6th Ctrl Delay		14.0
HCM 6th LOS		B

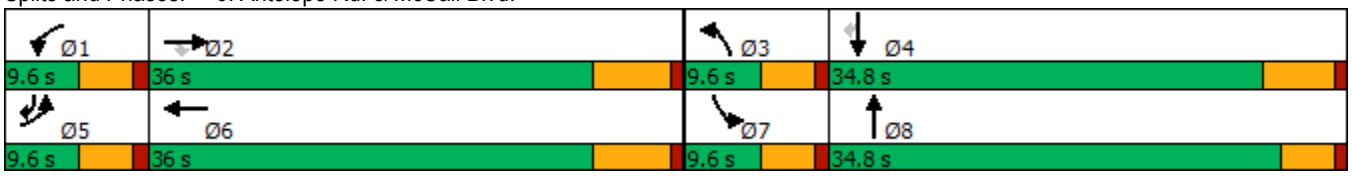
Notes

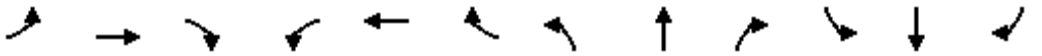
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	109	859	26	56	1234	53	21	50	11	216
Future Volume (vph)	109	859	26	56	1234	53	21	50	11	216
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA	pm+ov
Protected Phases	5	2		1	6	3	8	7	4	5
Permitted Phases			2							4
Detector Phase	5	2	2	1	6	3	8	7	4	5
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	35.2	35.2	9.6	35.2	9.6	33.6	9.6	34.8	9.6
Total Split (s)	9.6	36.0	36.0	9.6	36.0	9.6	34.8	9.6	34.8	9.6
Total Split (%)	10.7%	40.0%	40.0%	10.7%	40.0%	10.7%	38.7%	10.7%	38.7%	10.7%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6	5.8	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 67.3
Natural Cycle: 100
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Antelope Rd. & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	109	859	26	56	1234	76	53	21	79	50	11	216
Future Volume (veh/h)	109	859	26	56	1234	76	53	21	79	50	11	216
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	120	944	27	62	1356	81	58	23	51	55	12	177
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	129	1596	711	90	1455	87	87	74	164	84	269	343
Arrive On Green	0.07	0.45	0.45	0.05	0.43	0.43	0.05	0.15	0.15	0.05	0.14	0.14
Sat Flow, veh/h	1781	3554	1583	1781	3407	203	1781	510	1130	1781	1870	1582
Grp Volume(v), veh/h	120	944	27	62	706	731	58	0	74	55	12	177
Grp Sat Flow(s),veh/h/ln	1781	1777	1583	1781	1777	1834	1781	0	1640	1781	1870	1582
Q Serve(g_s), s	4.6	13.7	0.7	2.4	26.0	26.2	2.2	0.0	2.8	2.1	0.4	6.8
Cycle Q Clear(g_c), s	4.6	13.7	0.7	2.4	26.0	26.2	2.2	0.0	2.8	2.1	0.4	6.8
Prop In Lane	1.00		1.00	1.00		0.11	1.00		0.69	1.00		1.00
Lane Grp Cap(c), veh/h	129	1596	711	90	759	783	87	0	239	84	269	343
V/C Ratio(X)	0.93	0.59	0.04	0.69	0.93	0.93	0.67	0.00	0.31	0.65	0.04	0.52
Avail Cap(c_a), veh/h	129	1596	711	129	769	793	129	0	719	129	788	781
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.8	14.2	10.6	32.2	18.8	18.8	32.2	0.0	26.3	32.3	25.4	23.8
Incr Delay (d2), s/veh	56.6	0.6	0.0	3.5	17.6	17.9	3.3	0.0	0.7	3.2	0.1	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	4.5	0.2	1.0	12.1	12.6	1.0	0.0	1.1	0.9	0.2	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	88.4	14.8	10.7	35.7	36.4	36.7	35.5	0.0	27.1	35.4	25.5	25.0
LnGrp LOS	F	B	B	D	D	D	D	A	C	D	C	C
Approach Vol, veh/h		1091			1499			132			244	
Approach Delay, s/veh		22.8			36.5			30.8			27.4	
Approach LOS		C			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.1	37.1	8.0	15.7	9.6	35.6	7.9	15.8
Change Period (Y+Rc), s	4.6	6.2	4.6	5.8	4.6	6.2	4.6	* 5.8
Max Green Setting (Gmax), s	5.0	29.8	5.0	29.0	5.0	29.8	5.0	* 30
Max Q Clear Time (g_c+I1), s	4.4	15.7	4.2	8.8	6.6	28.2	4.1	4.8
Green Ext Time (p_c), s	0.0	5.1	0.0	0.5	0.0	1.2	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	30.5
HCM 6th LOS	C

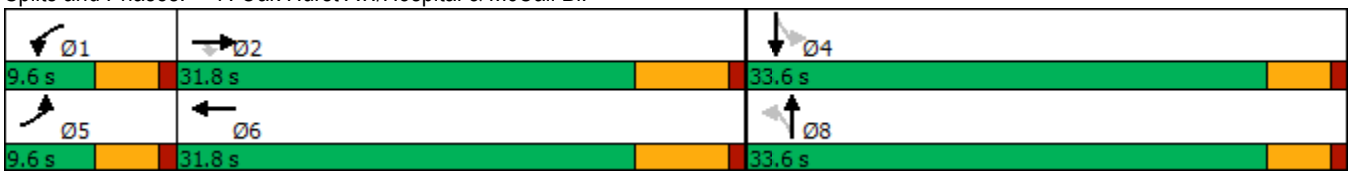
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	2	998	10	27	1311	32	1	15	1
Future Volume (vph)	2	998	10	27	1311	32	1	15	1
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2		1	6		8		4
Permitted Phases			2			8		4	
Detector Phase	5	2	2	1	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	23.2	23.2	9.6	23.2	33.6	33.6	14.6	14.6
Total Split (s)	9.6	31.8	31.8	9.6	31.8	33.6	33.6	33.6	33.6
Total Split (%)	12.8%	42.4%	42.4%	12.8%	42.4%	44.8%	44.8%	44.8%	44.8%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2		4.6		4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 48.2
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 7: Oak Hurst Av./Hospital & McCall Bl.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	998	10	27	1311	6	32	1	34	15	1	0
Future Volume (veh/h)	2	998	10	27	1311	6	32	1	34	15	1	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	1121	11	30	1473	7	36	1	18	17	1	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	5	1727	770	63	1880	9	230	27	56	323	14	0
Arrive On Green	0.00	0.49	0.49	0.04	0.52	0.52	0.11	0.11	0.11	0.11	0.11	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3627	17	786	242	500	1387	128	0
Grp Volume(v), veh/h	2	1121	11	30	721	759	55	0	0	18	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1867	1528	0	0	1515	0	0
Q Serve(g_s), s	0.0	10.0	0.2	0.7	13.8	13.9	0.4	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	10.0	0.2	0.7	13.8	13.9	1.3	0.0	0.0	0.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	0.65		0.33	0.94		0.00
Lane Grp Cap(c), veh/h	5	1727	770	63	921	968	314	0	0	337	0	0
V/C Ratio(X)	0.41	0.65	0.01	0.48	0.78	0.78	0.18	0.00	0.00	0.05	0.00	0.00
Avail Cap(c_a), veh/h	212	2163	965	212	1081	1136	1164	0	0	1152	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	20.9	8.1	5.6	19.9	8.2	8.2	17.1	0.0	0.0	16.7	0.0	0.0
Incr Delay (d2), s/veh	19.1	0.5	0.0	2.1	3.3	3.1	0.3	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.9	0.0	0.3	3.1	3.2	0.5	0.0	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.0	8.6	5.6	22.0	11.5	11.3	17.4	0.0	0.0	16.8	0.0	0.0
LnGrp LOS	D	A	A	C	B	B	B	A	A	B	A	A
Approach Vol, veh/h		1134			1510			55			18	
Approach Delay, s/veh		8.6			11.6			17.4			16.8	
Approach LOS		A			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.1	26.6		9.3	4.7	28.0		9.3				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	5.0	25.6		29.0	5.0	25.6		29.0				
Max Q Clear Time (g_c+I1), s	2.7	12.0		2.4	2.0	15.9		3.3				
Green Ext Time (p_c), s	0.0	6.0		0.0	0.0	6.0		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		10.5	
HCM 6th LOS		B	

Intersection	
Int Delay, s/veh	2.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	48	27	162	40	24	292
Future Vol, veh/h	48	27	162	40	24	292
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	64	64	64	64	64	64
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	75	42	253	63	38	456

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	817	285	0	0	316	0
Stage 1	285	-	-	-	-	-
Stage 2	532	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	346	754	-	-	1244	-
Stage 1	763	-	-	-	-	-
Stage 2	589	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	332	754	-	-	1244	-
Mov Cap-2 Maneuver	332	-	-	-	-	-
Stage 1	763	-	-	-	-	-
Stage 2	565	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17	0	0.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	416	1244	-
HCM Lane V/C Ratio	-	-	0.282	0.03	-
HCM Control Delay (s)	-	-	17	8	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	1.1	0.1	-

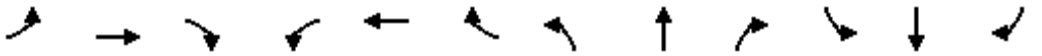
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	205	854	6	1124	77	5	1	167	2
Future Volume (vph)	205	854	6	1124	77	5	1	167	2
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2	1	6			8		4
Permitted Phases					6	8		4	
Detector Phase	5	2	1	6	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	23.2	9.6	23.2	23.2	22.6	22.6	33.6	33.6
Total Split (s)	19.0	46.8	9.6	37.4	37.4	33.6	33.6	33.6	33.6
Total Split (%)	21.1%	52.0%	10.7%	41.6%	41.6%	37.3%	37.3%	37.3%	37.3%
Yellow Time (s)	3.6	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	6.2		4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 78.5
Natural Cycle: 110
Control Type: Actuated-Uncoordinated

Splits and Phases: 9: Junipero Rd. & McCall Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	205	854	1	6	1124	77	5	1	7	167	2	213
Future Volume (veh/h)	205	854	1	6	1124	77	5	1	7	167	2	213
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	253	1054	1	7	1388	72	6	1	2	206	2	165
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	296	1093	1	16	1519	678	168	34	34	370	4	297
Arrive On Green	0.17	0.58	0.58	0.01	0.43	0.43	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1781	1868	2	1781	3554	1585	443	178	177	1414	19	1566
Grp Volume(v), veh/h	253	0	1055	7	1388	72	9	0	0	206	0	167
Grp Sat Flow(s),veh/h/ln	1781	0	1870	1781	1777	1585	798	0	0	1414	0	1585
Q Serve(g_s), s	9.8	0.0	38.2	0.3	26.1	1.9	0.0	0.0	0.0	2.9	0.0	6.8
Cycle Q Clear(g_c), s	9.8	0.0	38.2	0.3	26.1	1.9	6.8	0.0	0.0	9.8	0.0	6.8
Prop In Lane	1.00		0.00	1.00		1.00	0.67		0.22	1.00		0.99
Lane Grp Cap(c), veh/h	296	0	1094	16	1519	678	235	0	0	370	0	300
V/C Ratio(X)	0.85	0.00	0.96	0.43	0.91	0.11	0.04	0.00	0.00	0.56	0.00	0.56
Avail Cap(c_a), veh/h	361	0	1094	125	1560	696	528	0	0	679	0	647
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.8	0.0	14.1	35.0	19.1	12.2	23.7	0.0	0.0	27.3	0.0	26.1
Incr Delay (d2), s/veh	13.3	0.0	19.2	6.6	8.5	0.1	0.1	0.0	0.0	1.3	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	0.0	16.6	0.1	10.3	0.6	0.1	0.0	0.0	3.4	0.0	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.1	0.0	33.3	41.7	27.6	12.3	23.8	0.0	0.0	28.6	0.0	27.7
LnGrp LOS	D	A	C	D	C	B	C	A	A	C	A	C
Approach Vol, veh/h		1308			1467			9			373	
Approach Delay, s/veh		35.0			26.9			23.8			28.2	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.2	47.8		18.1	16.4	36.6		18.1				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	5.0	40.6		29.0	14.4	31.2		29.0				
Max Q Clear Time (g_c+I1), s	2.3	40.2		11.8	11.8	28.1		8.8				
Green Ext Time (p_c), s	0.0	0.3		1.5	0.1	2.3		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		30.4	
HCM 6th LOS		C	

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	55	0	0	62	10	0	0	0	15	0	6
Future Vol, veh/h	3	55	0	0	62	10	0	0	0	15	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	72	0	0	82	13	0	0	0	20	0	8

Major/Minor	Major1			Major2					Minor2		
Conflicting Flow All	95	0	-	-	-	0			169	169	89
Stage 1	-	-	-	-	-	-			89	89	-
Stage 2	-	-	-	-	-	-			80	80	-
Critical Hdwy	4.12	-	-	-	-	-			6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-			5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-			5.42	5.52	-
Follow-up Hdwy	2.218	-	-	-	-	-			3.518	4.018	3.318
Pot Cap-1 Maneuver	1499	-	0	0	-	-			821	724	969
Stage 1	-	-	0	0	-	-			934	821	-
Stage 2	-	-	0	0	-	-			943	828	-
Platoon blocked, %		-			-	-					
Mov Cap-1 Maneuver	1499	-	-	-	-	-			819	0	969
Mov Cap-2 Maneuver	-	-	-	-	-	-			819	0	-
Stage 1	-	-	-	-	-	-			931	0	-
Stage 2	-	-	-	-	-	-			943	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	9.3
HCM LOS			A

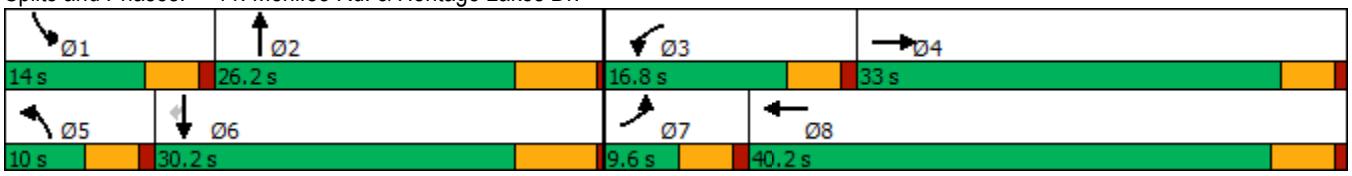
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1499	-	-	-	857
HCM Lane V/C Ratio	0.003	-	-	-	0.032
HCM Control Delay (s)	7.4	0	-	-	9.3
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

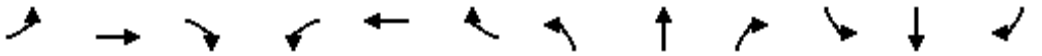
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	18	19	89	23	27	804	95	715	25
Future Volume (vph)	18	19	89	23	27	804	95	715	25
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2	1	6	
Permitted Phases									6
Detector Phase	7	4	3	8	5	2	1	6	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	14.6	9.6	40.2	9.6	26.0	9.6	26.0	26.0
Total Split (s)	9.6	33.0	16.8	40.2	10.0	26.2	14.0	30.2	30.2
Total Split (%)	10.7%	36.7%	18.7%	44.7%	11.1%	29.1%	15.6%	33.6%	33.6%
Yellow Time (s)	3.6	3.6	3.6	4.2	3.6	5.5	3.6	5.5	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	0.5	1.0	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	5.2	4.6	6.0	4.6	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 63.3
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 11: Menifee Rd. & Heritage Lakes Dr.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	19	36	89	23	159	27	804	45	95	715	25
Future Volume (veh/h)	18	19	36	89	23	159	27	804	45	95	715	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	24	19	111	29	98	34	1005	41	119	894	25
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	47	127	101	143	70	235	67	1491	61	153	1226	535
Arrive On Green	0.03	0.13	0.13	0.08	0.19	0.19	0.04	0.30	0.30	0.09	0.34	0.34
Sat Flow, veh/h	1781	960	760	1781	372	1258	1781	5027	205	1781	3554	1550
Grp Volume(v), veh/h	22	0	43	111	0	127	34	680	366	119	894	25
Grp Sat Flow(s),veh/h/ln	1781	0	1721	1781	0	1630	1781	1702	1827	1781	1777	1550
Q Serve(g_s), s	0.6	0.0	1.1	3.1	0.0	3.5	0.9	8.9	8.9	3.3	11.1	0.5
Cycle Q Clear(g_c), s	0.6	0.0	1.1	3.1	0.0	3.5	0.9	8.9	8.9	3.3	11.1	0.5
Prop In Lane	1.00		0.44	1.00		0.77	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	47	0	228	143	0	305	67	1009	542	153	1226	535
V/C Ratio(X)	0.47	0.00	0.19	0.77	0.00	0.42	0.51	0.67	0.68	0.78	0.73	0.05
Avail Cap(c_a), veh/h	176	0	968	431	0	1131	191	1363	732	332	1704	743
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.2	0.0	19.5	22.7	0.0	18.1	23.8	15.6	15.6	22.6	14.5	11.0
Incr Delay (d2), s/veh	2.7	0.0	0.4	3.3	0.0	0.9	2.2	0.8	1.5	3.2	1.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.4	1.3	0.0	1.2	0.4	2.6	2.9	1.3	3.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.9	0.0	19.9	26.1	0.0	19.0	26.0	16.4	17.1	25.8	15.5	11.0
LnGrp LOS	C	A	B	C	A	B	C	B	B	C	B	B
Approach Vol, veh/h		65			238			1080			1038	
Approach Delay, s/veh		22.2			22.3			16.9			16.5	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.9	21.0	8.7	11.9	6.5	23.4	5.9	14.6
Change Period (Y+Rc), s	4.6	6.0	4.6	* 5.2	4.6	6.0	4.6	5.2
Max Green Setting (Gmax), s	9.4	20.2	12.2	* 28	5.4	24.2	5.0	35.0
Max Q Clear Time (g_c+I1), s	5.3	10.9	5.1	3.1	2.9	13.1	2.6	5.5
Green Ext Time (p_c), s	0.0	4.0	0.1	0.2	0.0	4.1	0.0	0.7

Intersection Summary	
HCM 6th Ctrl Delay	17.4
HCM 6th LOS	B

Notes

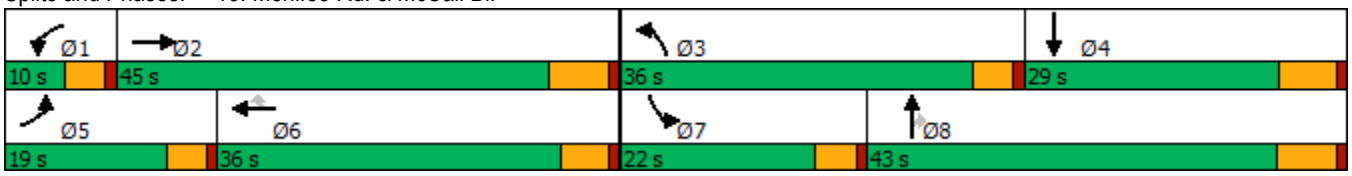
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

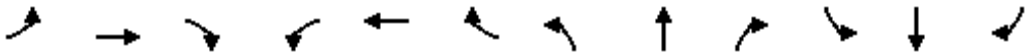
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	195	422	53	546	248	489	424	38	193	440
Future Volume (vph)	195	422	53	546	248	489	424	38	193	440
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	5	2	1	6		3	8		7	4
Permitted Phases					6			8		
Detector Phase	5	2	1	6	6	3	8	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	33.5	9.6	33.5	33.5	9.6	42.5	42.5	9.6	16.5
Total Split (s)	19.0	45.0	10.0	36.0	36.0	36.0	43.0	43.0	22.0	29.0
Total Split (%)	15.8%	37.5%	8.3%	30.0%	30.0%	30.0%	35.8%	35.8%	18.3%	24.2%
Yellow Time (s)	3.6	5.5	3.6	4.4	4.4	3.6	5.5	5.5	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.5	4.6	5.4	5.4	4.6	6.5	6.5	4.6	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 117.6
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 13: Menifee Rd. & McCall Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	195	422	423	53	546	248	489	424	38	193	440	203
Future Volume (veh/h)	195	422	423	53	546	248	489	424	38	193	440	203
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			Yes			Yes	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1859	1859	1859
Adj Flow Rate, veh/h	241	521	445	65	674	176	604	523	30	238	543	171
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	219	566	483	130	804	359	477	1114	490	263	512	161
Arrive On Green	0.12	0.31	0.31	0.04	0.23	0.23	0.27	0.31	0.31	0.15	0.19	0.19
Sat Flow, veh/h	1781	1816	1551	3456	3554	1585	1781	3554	1563	1771	2637	827
Grp Volume(v), veh/h	241	510	456	65	674	176	604	523	30	238	363	351
Grp Sat Flow(s),veh/h/ln	1781	1777	1591	1728	1777	1585	1781	1777	1563	1771	1766	1697
Q Serve(g_s), s	14.4	32.5	32.5	2.2	21.3	11.3	31.4	13.9	1.6	15.5	22.8	22.8
Cycle Q Clear(g_c), s	14.4	32.5	32.5	2.2	21.3	11.3	31.4	13.9	1.6	15.5	22.8	22.8
Prop In Lane	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.49
Lane Grp Cap(c), veh/h	219	553	496	130	804	359	477	1114	490	263	343	330
V/C Ratio(X)	1.10	0.92	0.92	0.50	0.84	0.49	1.27	0.47	0.06	0.91	1.06	1.06
Avail Cap(c_a), veh/h	219	583	522	159	927	413	477	1114	490	263	343	330
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.5	39.0	39.0	55.4	43.4	39.5	43.0	32.4	28.2	49.2	47.3	47.3
Incr Delay (d2), s/veh	91.0	19.6	21.3	1.1	6.1	1.0	136.1	0.3	0.1	31.5	64.7	67.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.7	16.3	14.9	0.9	9.8	4.3	30.9	5.7	0.6	8.8	15.6	15.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	142.5	58.6	60.3	56.5	49.5	40.6	179.0	32.7	28.2	80.7	111.9	114.9
LnGrp LOS	F	E	E	E	D	D	F	C	C	F	F	F
Approach Vol, veh/h		1207			915			1157			952	
Approach Delay, s/veh		76.0			48.3			109.0			105.2	
Approach LOS		E			D			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.0	43.0	36.0	29.3	19.0	33.0	22.0	43.3
Change Period (Y+Rc), s	4.6	6.5	4.6	* 6.5	4.6	* 6.5	4.6	6.5
Max Green Setting (Gmax), s	5.4	38.5	31.4	* 23	14.4	* 31	17.4	36.5
Max Q Clear Time (g_c+I1), s	4.2	34.5	33.4	24.8	16.4	23.3	17.5	15.9
Green Ext Time (p_c), s	0.0	2.1	0.0	0.0	0.0	2.9	0.0	3.0

Intersection Summary	
HCM 6th Ctrl Delay	85.6
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

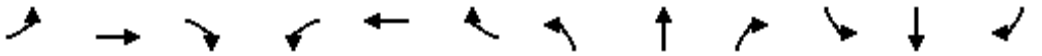
Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1242	407	435	1202	0	554
Future Volume (vph)	1242	407	435	1202	0	554
Turn Type	NA	Perm	Prot	NA	NA	Perm
Protected Phases	2		1	6	4	
Permitted Phases		2				4
Detector Phase	2	2	1	6	4	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.0	22.0	9.0	20.0	20.0	20.0
Total Split (s)	37.0	37.0	26.0	63.0	37.0	37.0
Total Split (%)	37.0%	37.0%	26.0%	63.0%	37.0%	37.0%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	3.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	None	None	None	C-Max	Max	Max

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 61 (61%), Referenced to phase 6:WBT, Start of Yellow
Natural Cycle: 120
Control Type: Actuated-Coordinated

Splits and Phases: 1: I-215 SB Ramps & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1242	407	435	1202	0	0	0	0	515	0	554
Future Volume (veh/h)	0	1242	407	435	1202	0	0	0	0	515	0	554
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1885	1885	0				1870	1900	1885
Adj Flow Rate, veh/h	0	1267	0	444	1227	0				526	0	397
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98
Percent Heavy Veh, %	0	2	2	1	1	0				2	0	1
Cap, veh/h	0	1155		404	2095	0				588	0	519
Arrive On Green	0.00	0.32	0.00	0.22	0.58	0.00				0.32	0.00	0.32
Sat Flow, veh/h	0	3647	1585	1795	3676	0				1810	0	1598
Grp Volume(v), veh/h	0	1267	0	444	1227	0				526	0	397
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1795	1791	0				1810	0	1598
Q Serve(g_s), s	0.0	32.5	0.0	22.5	21.6	0.0				27.7	0.0	22.3
Cycle Q Clear(g_c), s	0.0	32.5	0.0	22.5	21.6	0.0				27.7	0.0	22.3
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1155		404	2095	0				588	0	519
V/C Ratio(X)	0.00	1.10		1.10	0.59	0.00				0.89	0.00	0.76
Avail Cap(c_a), veh/h	0	1155		404	2095	0				588	0	519
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.09	0.09	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	33.8	0.0	38.8	13.1	0.0				32.1	0.0	30.3
Incr Delay (d2), s/veh	0.0	57.1	0.0	48.7	0.1	0.0				18.6	0.0	10.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	22.1	0.0	14.8	7.4	0.0				14.3	0.0	9.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	90.9	0.0	87.4	13.2	0.0				50.7	0.0	40.6
LnGrp LOS	A	F		F	B	A				D	A	D
Approach Vol, veh/h		1267			1671						923	
Approach Delay, s/veh		90.9			32.9						46.4	
Approach LOS		F			C						D	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	26.0	37.0		37.0		63.0
Change Period (Y+Rc), s	3.5	4.5		4.5		4.5
Max Green Setting (Gmax), s	22.5	32.5		32.5		58.5
Max Q Clear Time (g_c+I1), s	24.5	34.5		29.7		23.6
Green Ext Time (p_c), s	0.0	0.0		0.9		6.2

Intersection Summary		
HCM 6th Ctrl Delay		55.2
HCM 6th LOS		E

Notes

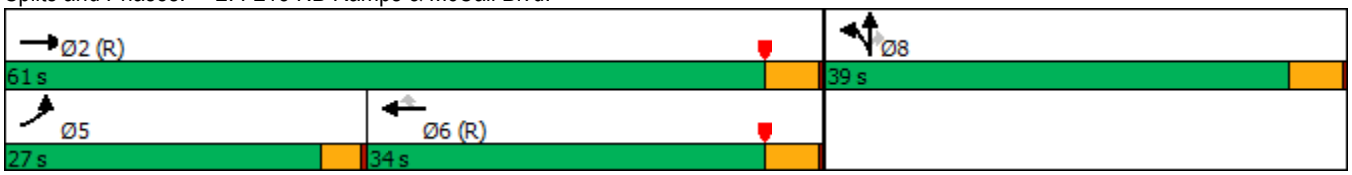
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

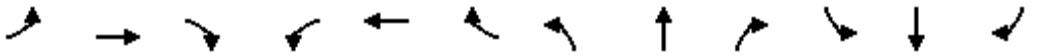
Lane Group	EBL	EBT	WBT	WBR	NBT	NBR
Lane Configurations						
Traffic Volume (vph)	334	1366	1151	310	0	659
Future Volume (vph)	334	1366	1151	310	0	659
Turn Type	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	6		8	
Permitted Phases				6		8
Detector Phase	5	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	8.5	22.0	20.0	20.0	20.0	20.0
Total Split (s)	27.0	61.0	34.0	34.0	39.0	39.0
Total Split (%)	27.0%	61.0%	34.0%	34.0%	39.0%	39.0%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	Max	Max

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection
Natural Cycle: 100
Control Type: Actuated-Coordinated

Splits and Phases: 2: I-215 NB Ramps & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	334	1366	0	0	1151	310	439	0	659	0	0	0
Future Volume (veh/h)	334	1366	0	0	1151	310	439	0	659	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1900	1856	1885	1900	1870			
Adj Flow Rate, veh/h	344	1408	0	0	1187	0	453	0	552			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	2	2	0	0	0	3	1	0	2			
Cap, veh/h	375	2008	0	0	1153		624	0	547			
Arrive On Green	0.21	0.56	0.00	0.00	0.32	0.00	0.34	0.00	0.34			
Sat Flow, veh/h	1781	3647	0	0	3705	1572	1810	0	1585			
Grp Volume(v), veh/h	344	1408	0	0	1187	0	453	0	552			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1805	1572	1810	0	1585			
Q Serve(g_s), s	18.9	28.5	0.0	0.0	31.9	0.0	21.9	0.0	34.5			
Cycle Q Clear(g_c), s	18.9	28.5	0.0	0.0	31.9	0.0	21.9	0.0	34.5			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	375	2008	0	0	1153		624	0	547			
V/C Ratio(X)	0.92	0.70	0.00	0.00	1.03		0.73	0.00	1.01			
Avail Cap(c_a), veh/h	419	2008	0	0	1153		624	0	547			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	0.41	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	38.6	15.7	0.0	0.0	34.0	0.0	28.6	0.0	32.8			
Incr Delay (d2), s/veh	3.0	0.2	0.0	0.0	25.0	0.0	7.2	0.0	40.8			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	8.1	10.0	0.0	0.0	17.0	0.0	10.1	0.0	18.4			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.6	15.9	0.0	0.0	59.0	0.0	35.8	0.0	73.6			
LnGrp LOS	D	B	A	A	F		D	A	F			
Approach Vol, veh/h		1752			1187			1005				
Approach Delay, s/veh		20.9			59.0			56.6				
Approach LOS		C			E			E				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		61.0			24.6	36.4		39.0				
Change Period (Y+Rc), s		4.5			3.5	4.5		4.5				
Max Green Setting (Gmax), s		56.5			23.5	29.5		34.5				
Max Q Clear Time (g_c+I1), s		30.5			20.9	33.9		36.5				
Green Ext Time (p_c), s		7.2			0.2	0.0		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	41.5
HCM 6th LOS	D

Notes

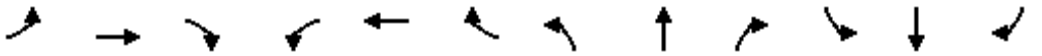
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	249	1605	55	1125	173	34	52	49	40
Future Volume (vph)	249	1605	55	1125	173	34	52	49	40
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA
Protected Phases	5	2	1	6		8			4
Permitted Phases					8		8	4	
Detector Phase	5	2	1	6	8	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	31.0	9.5	31.0	33.0	33.0	33.0	20.0	20.0
Total Split (s)	21.0	56.0	11.0	46.0	33.0	33.0	33.0	33.0	33.0
Total Split (%)	21.0%	56.0%	11.0%	46.0%	33.0%	33.0%	33.0%	33.0%	33.0%
Yellow Time (s)	3.5	5.0	3.5	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	4.5	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 88.9
Natural Cycle: 100
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Encanto Dr. & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	249	1605	257	55	1125	30	173	34	52	49	40	221
Future Volume (veh/h)	249	1605	257	55	1125	30	173	34	52	49	40	221
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	259	1672	231	57	1172	30	180	35	45	51	42	156
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	291	1628	220	73	1400	36	276	506	428	412	94	349
Arrive On Green	0.16	0.52	0.52	0.04	0.40	0.40	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1781	3145	425	1781	3540	91	1185	1870	1582	1316	347	1291
Grp Volume(v), veh/h	259	929	974	57	588	614	180	35	45	51	0	198
Grp Sat Flow(s),veh/h/ln	1781	1777	1793	1781	1777	1854	1185	1870	1582	1316	0	1638
Q Serve(g_s), s	13.7	50.0	50.0	3.1	28.9	28.9	14.4	1.3	2.1	2.9	0.0	9.7
Cycle Q Clear(g_c), s	13.7	50.0	50.0	3.1	28.9	28.9	24.1	1.3	2.1	4.2	0.0	9.7
Prop In Lane	1.00		0.24	1.00		0.05	1.00		1.00	1.00		0.79
Lane Grp Cap(c), veh/h	291	920	928	73	703	733	276	506	428	412	0	443
V/C Ratio(X)	0.89	1.01	1.05	0.78	0.84	0.84	0.65	0.07	0.11	0.12	0.00	0.45
Avail Cap(c_a), veh/h	304	920	928	120	736	768	287	523	442	424	0	458
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.6	23.3	23.3	45.9	26.4	26.4	39.2	26.2	26.5	27.8	0.0	29.2
Incr Delay (d2), s/veh	24.4	32.1	43.3	6.5	7.5	7.2	3.8	0.0	0.0	0.0	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.7	26.1	29.2	1.4	12.6	13.1	4.4	0.6	0.8	0.9	0.0	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.0	55.4	66.6	52.4	33.9	33.6	43.0	26.2	26.5	27.8	0.0	29.5
LnGrp LOS	E	F	F	D	C	C	D	C	C	C	A	C
Approach Vol, veh/h		2162			1259			260			249	
Approach Delay, s/veh		61.4			34.6			37.9			29.2	
Approach LOS		E			C			D			C	

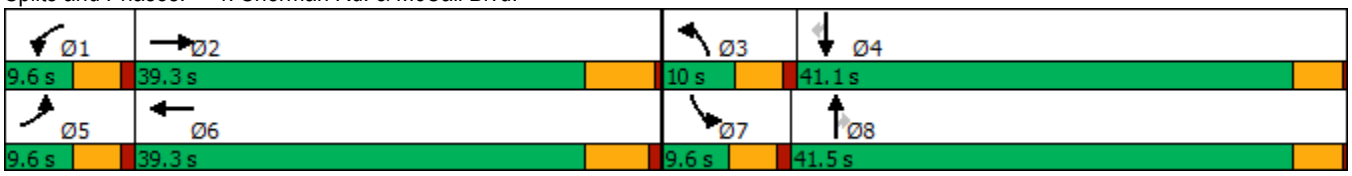
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.5	56.0		32.1	20.3	44.2		32.1				
Change Period (Y+Rc), s	4.5	6.0		6.0	4.5	6.0		6.0				
Max Green Setting (Gmax), s	6.5	50.0		27.0	16.5	40.0		27.0				
Max Q Clear Time (g_c+I1), s	5.1	52.0		11.7	15.7	30.9		26.1				
Green Ext Time (p_c), s	0.0	0.0		0.7	0.0	3.3		0.1				

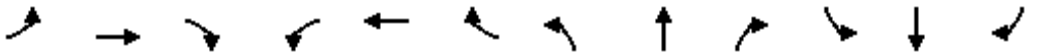
Intersection Summary			
HCM 6th Ctrl Delay		49.2	
HCM 6th LOS		D	

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	144	1386	29	941	97	23	31	69	20	81
Future Volume (vph)	144	1386	29	941	97	23	31	69	20	81
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2	1	6	3	8		7	4	
Permitted Phases							8			4
Detector Phase	5	2	1	6	3	8	8	7	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	38.7	9.6	38.8	9.6	41.1	41.1	9.6	41.1	41.1
Total Split (s)	9.6	39.3	9.6	39.3	10.0	41.5	41.5	9.6	41.1	41.1
Total Split (%)	9.6%	39.3%	9.6%	39.3%	10.0%	41.5%	41.5%	9.6%	41.1%	41.1%
Yellow Time (s)	3.6	5.2	3.6	4.8	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	0.5	1.0	1.0	1.0	0.5	0.5	1.0	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.7	4.6	5.8	4.6	4.1	4.1	4.6	4.1	4.1
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 72.5
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 4: Sherman Rd. & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	144	1386	86	29	941	96	97	23	31	69	20	81
Future Volume (veh/h)	144	1386	86	29	941	96	97	23	31	69	20	81
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.96	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	155	1490	86	31	1012	101	104	25	22	74	22	75
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	132	1646	95	58	1437	143	133	275	224	99	240	203
Arrive On Green	0.07	0.48	0.48	0.03	0.44	0.44	0.07	0.15	0.15	0.06	0.13	0.13
Sat Flow, veh/h	1781	3415	196	1781	3263	326	1781	1870	1521	1781	1870	1582
Grp Volume(v), veh/h	155	772	804	31	551	562	104	25	22	74	22	75
Grp Sat Flow(s),veh/h/ln	1781	1777	1835	1781	1777	1812	1781	1870	1521	1781	1870	1582
Q Serve(g_s), s	5.0	26.9	27.3	1.2	17.0	17.0	3.9	0.8	0.8	2.8	0.7	2.9
Cycle Q Clear(g_c), s	5.0	26.9	27.3	1.2	17.0	17.0	3.9	0.8	0.8	2.8	0.7	2.9
Prop In Lane	1.00		0.11	1.00		0.18	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	132	856	884	58	783	798	133	275	224	99	240	203
V/C Ratio(X)	1.18	0.90	0.91	0.53	0.70	0.70	0.78	0.09	0.10	0.75	0.09	0.37
Avail Cap(c_a), veh/h	132	884	913	132	881	899	142	1036	842	132	1025	867
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.3	16.0	16.1	32.2	15.3	15.3	30.7	24.9	24.9	31.4	26.0	27.0
Incr Delay (d2), s/veh	133.2	12.2	12.6	2.8	2.2	2.2	20.3	0.1	0.2	9.6	0.2	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.8	11.3	11.9	0.5	6.0	6.1	2.4	0.3	0.3	1.4	0.3	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	164.5	28.2	28.7	35.0	17.5	17.5	51.0	25.0	25.1	41.0	26.1	28.1
LnGrp LOS	F	C	C	C	B	B	D	C	C	D	C	C
Approach Vol, veh/h		1731			1144			151			171	
Approach Delay, s/veh		40.7			18.0			42.9			33.4	
Approach LOS		D			B			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.8	38.3	9.6	12.8	9.6	35.6	8.4	14.0
Change Period (Y+Rc), s	4.6	* 5.8	4.6	4.1	4.6	5.8	4.6	4.1
Max Green Setting (Gmax), s	5.0	* 34	5.4	37.0	5.0	33.5	5.0	37.4
Max Q Clear Time (g_c+I1), s	3.2	29.3	5.9	4.9	7.0	19.0	4.8	2.8
Green Ext Time (p_c), s	0.0	3.3	0.0	0.3	0.0	5.8	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	32.3
HCM 6th LOS	C

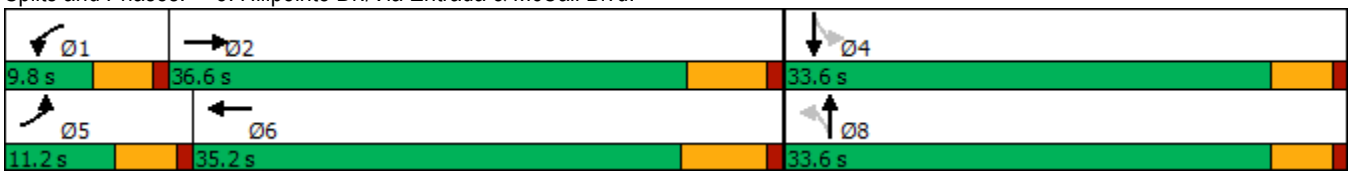
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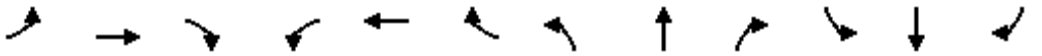
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	50	1447	28	1096	72	2	15	4
Future Volume (vph)	50	1447	28	1096	72	2	15	4
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases					8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	22.8	9.6	23.2	33.6	33.6	33.6	33.6
Total Split (s)	11.2	36.6	9.8	35.2	33.6	33.6	33.6	33.6
Total Split (%)	14.0%	45.8%	12.3%	44.0%	42.0%	42.0%	42.0%	42.0%
Yellow Time (s)	3.6	4.8	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.6	5.8	4.6	6.2		4.6		4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 57.7
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 5: Hillpointe Dr./Via Entrada & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	1447	122	28	1096	12	72	2	20	15	4	32
Future Volume (veh/h)	50	1447	122	28	1096	12	72	2	20	15	4	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	52	1507	117	29	1142	11	75	2	13	16	4	8
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	90	1793	138	58	1870	18	284	16	29	208	59	64
Arrive On Green	0.05	0.54	0.54	0.03	0.52	0.52	0.14	0.14	0.14	0.14	0.14	0.14
Sat Flow, veh/h	1781	3343	258	1781	3606	35	1142	115	212	723	428	461
Grp Volume(v), veh/h	52	797	827	29	563	590	90	0	0	28	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1824	1781	1777	1864	1469	0	0	1612	0	0
Q Serve(g_s), s	1.5	19.9	20.3	0.8	11.8	11.8	2.1	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.5	19.9	20.3	0.8	11.8	11.8	2.8	0.0	0.0	0.7	0.0	0.0
Prop In Lane	1.00		0.14	1.00		0.02	0.83		0.14	0.57		0.29
Lane Grp Cap(c), veh/h	90	953	978	58	921	967	329	0	0	331	0	0
V/C Ratio(X)	0.58	0.84	0.85	0.50	0.61	0.61	0.27	0.00	0.00	0.08	0.00	0.00
Avail Cap(c_a), veh/h	223	1038	1065	176	977	1025	918	0	0	946	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	24.5	10.3	10.4	25.1	8.9	8.9	20.7	0.0	0.0	19.9	0.0	0.0
Incr Delay (d2), s/veh	2.2	5.7	6.0	2.4	1.0	1.0	0.4	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	6.2	6.5	0.3	2.9	3.1	1.0	0.0	0.0	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.7	16.0	16.4	27.5	10.0	9.9	21.2	0.0	0.0	20.0	0.0	0.0
LnGrp LOS	C	B	B	C	A	A	C	A	A	B	A	A
Approach Vol, veh/h		1676			1182			90			28	
Approach Delay, s/veh		16.5			10.4			21.2			20.0	
Approach LOS		B			B			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.3	34.5		11.9	7.3	33.6		11.9				
Change Period (Y+Rc), s	4.6	* 6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	5.2	* 31		29.0	6.6	29.0		29.0				
Max Q Clear Time (g_c+I1), s	2.8	22.3		2.7	3.5	13.8		4.8				
Green Ext Time (p_c), s	0.0	6.0		0.1	0.0	6.0		0.4				

Intersection Summary		
HCM 6th Ctrl Delay		14.2
HCM 6th LOS		B

Notes

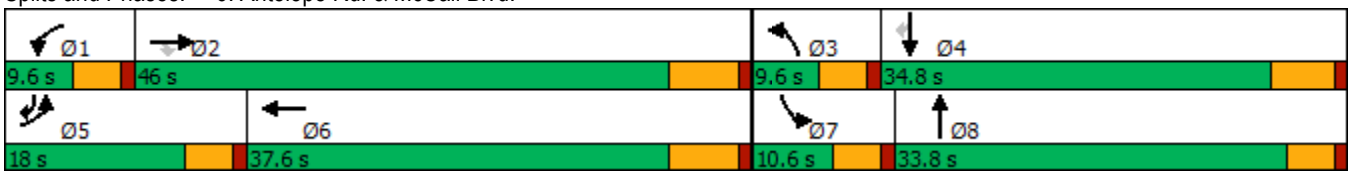
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

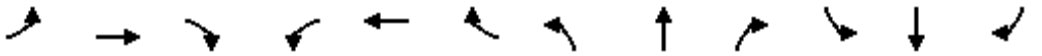
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	209	1201	55	28	950	39	18	28	12	144
Future Volume (vph)	209	1201	55	28	950	39	18	28	12	144
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA	pm+ov
Protected Phases	5	2		1	6	3	8	7	4	5
Permitted Phases			2							4
Detector Phase	5	2	2	1	6	3	8	7	4	5
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	35.2	35.2	9.6	35.2	9.6	33.6	9.6	34.8	9.6
Total Split (s)	18.0	46.0	46.0	9.6	37.6	9.6	33.8	10.6	34.8	18.0
Total Split (%)	18.0%	46.0%	46.0%	9.6%	37.6%	9.6%	33.8%	10.6%	34.8%	18.0%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6	5.8	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 69.6
Natural Cycle: 100
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Antelope Rd. & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	209	1201	55	28	950	46	39	18	29	28	12	144
Future Volume (veh/h)	209	1201	55	28	950	46	39	18	29	28	12	144
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	230	1320	57	31	1044	51	43	20	18	31	13	110
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	274	1743	777	58	1273	62	72	125	113	58	245	451
Arrive On Green	0.15	0.49	0.49	0.03	0.37	0.37	0.04	0.14	0.14	0.03	0.13	0.13
Sat Flow, veh/h	1781	3554	1585	1781	3448	168	1781	901	811	1781	1870	1585
Grp Volume(v), veh/h	230	1320	57	31	538	557	43	0	38	31	13	110
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1840	1781	0	1711	1781	1870	1585
Q Serve(g_s), s	8.7	20.9	1.3	1.2	19.0	19.0	1.6	0.0	1.4	1.2	0.4	3.7
Cycle Q Clear(g_c), s	8.7	20.9	1.3	1.2	19.0	19.0	1.6	0.0	1.4	1.2	0.4	3.7
Prop In Lane	1.00		1.00	1.00		0.09	1.00		0.47	1.00		1.00
Lane Grp Cap(c), veh/h	274	1743	777	58	656	679	72	0	238	58	245	451
V/C Ratio(X)	0.84	0.76	0.07	0.54	0.82	0.82	0.59	0.00	0.16	0.54	0.05	0.24
Avail Cap(c_a), veh/h	344	2041	910	128	805	834	128	0	721	154	783	907
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.5	14.3	9.3	33.0	19.8	19.8	32.7	0.0	26.3	33.0	26.4	19.1
Incr Delay (d2), s/veh	11.6	1.4	0.0	2.9	5.6	5.4	2.9	0.0	0.3	2.9	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	6.7	0.4	0.5	7.5	7.7	0.8	0.0	0.6	0.5	0.2	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.1	15.7	9.4	35.9	25.4	25.2	35.6	0.0	26.6	35.9	26.5	19.3
LnGrp LOS	D	B	A	D	C	C	D	A	C	D	C	B
Approach Vol, veh/h		1607			1126			81			154	
Approach Delay, s/veh		19.0			25.6			31.4			23.3	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.8	40.2	7.4	14.9	15.3	31.8	6.8	15.4
Change Period (Y+Rc), s	4.6	6.2	4.6	5.8	4.6	6.2	4.6	* 5.8
Max Green Setting (Gmax), s	5.0	39.8	5.0	29.0	13.4	31.4	6.0	* 29
Max Q Clear Time (g_c+I1), s	3.2	22.9	3.6	5.7	10.7	21.0	3.2	3.4
Green Ext Time (p_c), s	0.0	8.3	0.0	0.3	0.1	4.6	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	22.1
HCM 6th LOS	C

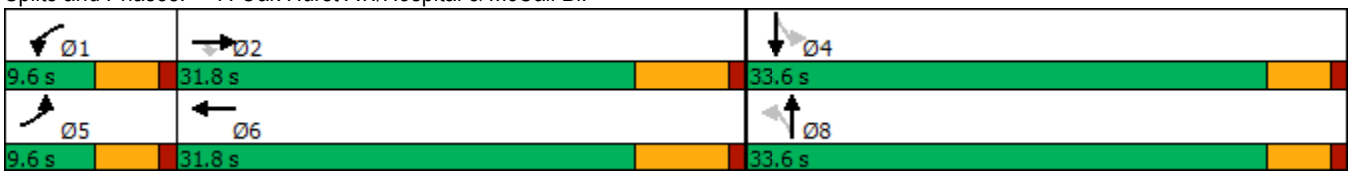
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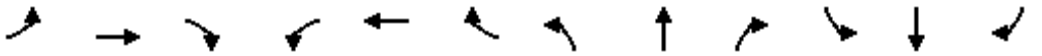
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	2	1203	42	18	953	44	0	10	0
Future Volume (vph)	2	1203	42	18	953	44	0	10	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2		1	6		8		4
Permitted Phases			2			8		4	
Detector Phase	5	2	2	1	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	23.2	23.2	9.6	23.2	33.6	33.6	14.6	14.6
Total Split (s)	9.6	31.8	31.8	9.6	31.8	33.6	33.6	33.6	33.6
Total Split (%)	12.8%	42.4%	42.4%	12.8%	42.4%	44.8%	44.8%	44.8%	44.8%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2		4.6		4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 46.3
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

Splits and Phases: 7: Oak Hurst Av./Hospital & McCall Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	1203	42	18	953	3	44	0	11	10	0	6
Future Volume (veh/h)	2	1203	42	18	953	3	44	0	11	10	0	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	1337	44	20	1059	3	49	0	3	11	0	5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	5	1776	792	44	1897	5	310	5	9	236	25	53
Arrive On Green	0.00	0.50	0.50	0.02	0.52	0.52	0.11	0.00	0.11	0.11	0.00	0.11
Sat Flow, veh/h	1781	3554	1585	1781	3635	10	1319	47	84	844	226	486
Grp Volume(v), veh/h	2	1337	44	20	518	544	52	0	0	16	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1869	1449	0	0	1557	0	0
Q Serve(g_s), s	0.0	12.7	0.6	0.5	8.2	8.2	1.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	12.7	0.6	0.5	8.2	8.2	1.3	0.0	0.0	0.3	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	0.94		0.06	0.69		0.31
Lane Grp Cap(c), veh/h	5	1776	792	44	927	975	324	0	0	313	0	0
V/C Ratio(X)	0.41	0.75	0.06	0.45	0.56	0.56	0.16	0.00	0.00	0.05	0.00	0.00
Avail Cap(c_a), veh/h	212	2168	967	212	1084	1140	1151	0	0	1166	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	20.9	8.4	5.4	20.2	6.8	6.8	17.2	0.0	0.0	16.8	0.0	0.0
Incr Delay (d2), s/veh	19.1	1.2	0.0	2.7	0.5	0.5	0.2	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.5	0.1	0.2	1.4	1.5	0.4	0.0	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.9	9.6	5.4	22.9	7.3	7.3	17.5	0.0	0.0	16.9	0.0	0.0
LnGrp LOS	D	A	A	C	A	A	B	A	A	B	A	A
Approach Vol, veh/h		1383			1082			52			16	
Approach Delay, s/veh		9.5			7.6			17.5			16.9	
Approach LOS		A			A			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.6	27.2		9.1	4.7	28.1		9.1				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	5.0	25.6		29.0	5.0	25.6		29.0				
Max Q Clear Time (g_c+I1), s	2.5	14.7		2.3	2.0	10.2		3.3				
Green Ext Time (p_c), s	0.0	6.3		0.0	0.0	5.4		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		8.9	
HCM 6th LOS		A	

Intersection	
Int Delay, s/veh	2.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	11	30	1	7	35
Future Vol, veh/h	10	11	30	1	7	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	15	40	1	9	47

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	106	41	0	0	41	0
Stage 1	41	-	-	-	-	-
Stage 2	65	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	892	1030	-	-	1568	-
Stage 1	981	-	-	-	-	-
Stage 2	958	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	887	1030	-	-	1568	-
Mov Cap-2 Maneuver	887	-	-	-	-	-
Stage 1	981	-	-	-	-	-
Stage 2	952	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	1.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	957	1568	-
HCM Lane V/C Ratio	-	-	0.029	0.006	-
HCM Control Delay (s)	-	-	8.9	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

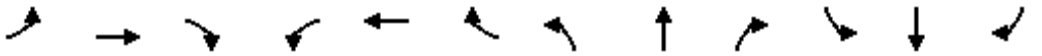
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	31	1175	3	918	8	3	0	5	0
Future Volume (vph)	31	1175	3	918	8	3	0	5	0
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2	1	6			8		4
Permitted Phases					6	8		4	
Detector Phase	5	2	1	6	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	23.2	9.6	23.2	23.2	22.6	22.6	33.6	33.6
Total Split (s)	10.4	46.8	9.6	46.0	46.0	33.6	33.6	33.6	33.6
Total Split (%)	11.6%	52.0%	10.7%	51.1%	51.1%	37.3%	37.3%	37.3%	37.3%
Yellow Time (s)	3.6	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	6.2		4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 61.3
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 9: Junipero Rd. & McCall Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	1175	3	3	918	8	3	0	0	5	0	49
Future Volume (veh/h)	31	1175	3	3	918	8	3	0	0	5	0	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	1250	3	3	977	8	3	0	0	5	0	28
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	63	1247	3	7	2265	1010	197	0	0	230	0	117
Arrive On Green	0.04	0.67	0.67	0.00	0.64	0.64	0.07	0.00	0.00	0.07	0.00	0.07
Sat Flow, veh/h	1781	1865	4	1781	3554	1585	1066	0	0	1418	0	1582
Grp Volume(v), veh/h	33	0	1253	3	977	8	3	0	0	5	0	28
Grp Sat Flow(s),veh/h/ln	1781	0	1870	1781	1777	1585	1066	0	0	1418	0	1582
Q Serve(g_s), s	1.1	0.0	40.6	0.1	8.3	0.1	0.1	0.0	0.0	0.0	0.0	1.0
Cycle Q Clear(g_c), s	1.1	0.0	40.6	0.1	8.3	0.1	1.1	0.0	0.0	0.2	0.0	1.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	63	0	1250	7	2265	1010	197	0	0	230	0	117
V/C Ratio(X)	0.53	0.00	1.00	0.41	0.43	0.01	0.02	0.00	0.00	0.02	0.00	0.24
Avail Cap(c_a), veh/h	170	0	1250	147	2329	1039	753	0	0	802	0	756
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.8	0.0	10.1	30.2	5.5	4.0	27.1	0.0	0.0	26.1	0.0	26.5
Incr Delay (d2), s/veh	2.5	0.0	26.1	13.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	15.9	0.1	1.6	0.0	0.0	0.0	0.0	0.1	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.3	0.0	36.1	43.6	5.6	4.0	27.1	0.0	0.0	26.2	0.0	27.6
LnGrp LOS	C	A	F	D	A	A	C	A	A	C	A	C
Approach Vol, veh/h		1286			988			3			33	
Approach Delay, s/veh		36.0			5.7			27.1			27.4	
Approach LOS		D			A			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.8	46.8		9.1	6.7	44.9		9.1				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	5.0	40.6		29.0	5.8	39.8		29.0				
Max Q Clear Time (g_c+I1), s	2.1	42.6		3.0	3.1	10.3		3.1				
Green Ext Time (p_c), s	0.0	0.0		0.1	0.0	6.9		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		22.9	
HCM 6th LOS		C	

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	8	0	0	16	6	0	0	0	5	0	3
Future Vol, veh/h	1	8	0	0	16	6	0	0	0	5	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	53	53	53	53	53	53	53	53	53	53	53	53
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	15	0	0	30	11	0	0	0	9	0	6

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	41	0	-	-	-	0	55	55	36
Stage 1	-	-	-	-	-	-	36	36	-
Stage 2	-	-	-	-	-	-	19	19	-
Critical Hdwy	4.12	-	-	-	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	-	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1568	-	0	0	-	-	953	836	1037
Stage 1	-	-	0	0	-	-	986	865	-
Stage 2	-	-	0	0	-	-	1004	880	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1568	-	-	-	-	-	952	0	1037
Mov Cap-2 Maneuver	-	-	-	-	-	-	952	0	-
Stage 1	-	-	-	-	-	-	985	0	-
Stage 2	-	-	-	-	-	-	1004	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	8.7
HCM LOS			A

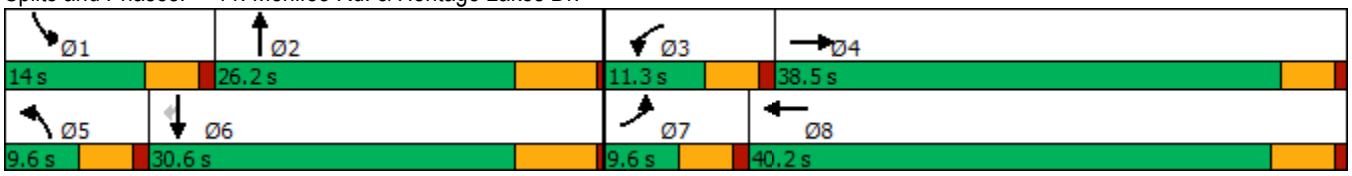
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1568	-	-	-	982
HCM Lane V/C Ratio	0.001	-	-	-	0.015
HCM Control Delay (s)	7.3	0	-	-	8.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

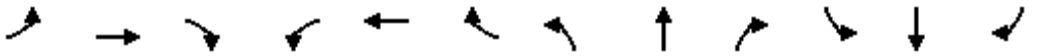
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	6	4	49	4	12	654	100	721	6
Future Volume (vph)	6	4	49	4	12	654	100	721	6
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2	1	6	
Permitted Phases									6
Detector Phase	7	4	3	8	5	2	1	6	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	14.6	9.6	40.2	9.6	26.0	9.6	26.0	26.0
Total Split (s)	9.6	38.5	11.3	40.2	9.6	26.2	14.0	30.6	30.6
Total Split (%)	10.7%	42.8%	12.6%	44.7%	10.7%	29.1%	15.6%	34.0%	34.0%
Yellow Time (s)	3.6	3.6	3.6	4.2	3.6	5.5	3.6	5.5	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	0.5	1.0	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	5.2	4.6	6.0	4.6	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 43.5
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 11: Menifee Rd. & Heritage Lakes Dr.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	4	3	49	4	42	12	654	62	100	721	6
Future Volume (veh/h)	6	4	3	49	4	42	12	654	62	100	721	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	6	4	3	51	4	15	12	681	61	104	751	5
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	14	19	14	99	23	85	28	1310	116	159	1239	553
Arrive On Green	0.01	0.02	0.02	0.06	0.07	0.07	0.02	0.28	0.28	0.09	0.35	0.35
Sat Flow, veh/h	1781	992	744	1781	345	1293	1781	4764	423	1781	3554	1585
Grp Volume(v), veh/h	6	0	7	51	0	19	12	485	257	104	751	5
Grp Sat Flow(s),veh/h/ln	1781	0	1736	1781	0	1638	1781	1702	1783	1781	1777	1585
Q Serve(g_s), s	0.1	0.0	0.1	1.0	0.0	0.4	0.2	4.4	4.4	2.1	6.3	0.1
Cycle Q Clear(g_c), s	0.1	0.0	0.1	1.0	0.0	0.4	0.2	4.4	4.4	2.1	6.3	0.1
Prop In Lane	1.00		0.43	1.00		0.79	1.00		0.24	1.00		1.00
Lane Grp Cap(c), veh/h	14	0	33	99	0	108	28	936	490	159	1239	553
V/C Ratio(X)	0.42	0.00	0.21	0.52	0.00	0.18	0.43	0.52	0.52	0.65	0.61	0.01
Avail Cap(c_a), veh/h	245	0	1620	328	0	1577	245	1892	991	461	2406	1073
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.9	0.0	17.6	16.7	0.0	16.0	17.7	11.1	11.2	16.0	9.8	7.7
Incr Delay (d2), s/veh	7.0	0.0	3.2	1.6	0.0	0.8	3.8	0.4	0.9	1.7	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.1	0.4	0.0	0.1	0.1	1.0	1.1	0.6	1.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.9	0.0	20.8	18.2	0.0	16.8	21.5	11.6	12.0	17.7	10.3	7.7
LnGrp LOS	C	A	C	B	A	B	C	B	B	B	B	A
Approach Vol, veh/h		13			70			754			860	
Approach Delay, s/veh		22.7			17.9			11.9			11.1	
Approach LOS		C			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.8	16.0	6.6	5.9	5.2	18.7	4.9	7.6
Change Period (Y+Rc), s	4.6	6.0	4.6	* 5.2	4.6	6.0	4.6	5.2
Max Green Setting (Gmax), s	9.4	20.2	6.7	* 34	5.0	24.6	5.0	35.0
Max Q Clear Time (g_c+I1), s	4.1	6.4	3.0	2.1	2.2	8.3	2.1	2.4
Green Ext Time (p_c), s	0.0	3.5	0.0	0.0	0.0	4.0	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	11.8
HCM 6th LOS	B

Notes

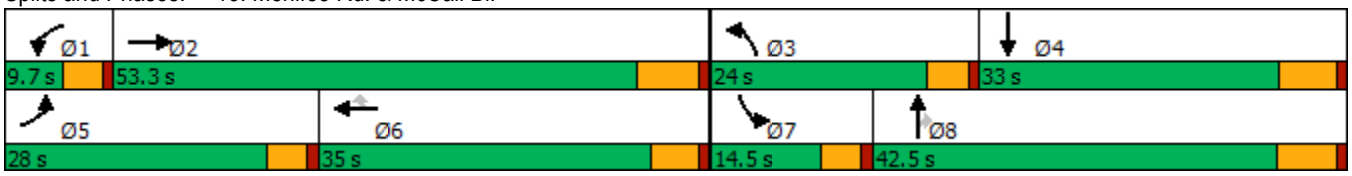
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

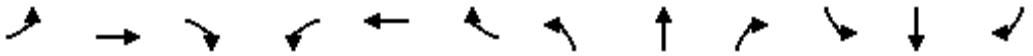
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	269	497	53	351	87	329	371	62	130	419
Future Volume (vph)	269	497	53	351	87	329	371	62	130	419
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	5	2	1	6		3	8		7	4
Permitted Phases					6			8		
Detector Phase	5	2	1	6	6	3	8	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	33.5	9.6	33.5	33.5	9.6	42.5	42.5	9.6	16.5
Total Split (s)	28.0	53.3	9.7	35.0	35.0	24.0	42.5	42.5	14.5	33.0
Total Split (%)	23.3%	44.4%	8.1%	29.2%	29.2%	20.0%	35.4%	35.4%	12.1%	27.5%
Yellow Time (s)	3.6	5.5	3.6	4.4	4.4	3.6	5.5	5.5	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.5	4.6	5.4	5.4	4.6	6.5	6.5	4.6	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 103.7
Natural Cycle: 110
Control Type: Actuated-Uncoordinated

Splits and Phases: 13: Menifee Rd. & McCall Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	269	497	424	53	351	87	329	371	62	130	419	224
Future Volume (veh/h)	269	497	424	53	351	87	329	371	62	130	419	224
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			Yes			Yes	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1859	1859	1859
Adj Flow Rate, veh/h	289	534	415	57	377	70	354	399	33	140	451	140
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	322	638	495	138	690	308	349	1083	477	170	544	168
Arrive On Green	0.18	0.34	0.34	0.04	0.19	0.19	0.20	0.30	0.30	0.10	0.20	0.20
Sat Flow, veh/h	1781	1902	1478	3456	3554	1585	1781	3554	1565	1771	2659	819
Grp Volume(v), veh/h	289	499	450	57	377	70	354	399	33	140	298	293
Grp Sat Flow(s),veh/h/ln	1781	1777	1603	1728	1777	1585	1781	1777	1565	1771	1766	1712
Q Serve(g_s), s	15.7	25.7	25.7	1.6	9.5	3.7	19.4	8.7	1.5	7.7	16.0	16.2
Cycle Q Clear(g_c), s	15.7	25.7	25.7	1.6	9.5	3.7	19.4	8.7	1.5	7.7	16.0	16.2
Prop In Lane	1.00		0.92	1.00		1.00	1.00		1.00	1.00		0.48
Lane Grp Cap(c), veh/h	322	596	537	138	690	308	349	1083	477	170	361	350
V/C Ratio(X)	0.90	0.84	0.84	0.41	0.55	0.23	1.01	0.37	0.07	0.83	0.83	0.84
Avail Cap(c_a), veh/h	421	840	758	178	1062	474	349	1292	569	177	478	463
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.6	30.4	30.4	46.4	35.9	33.6	39.8	27.0	24.4	43.9	37.7	37.8
Incr Delay (d2), s/veh	15.4	5.3	5.8	0.7	0.7	0.4	51.8	0.2	0.1	23.7	8.7	9.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	10.9	9.9	0.7	4.0	1.4	12.9	3.4	0.5	4.3	7.3	7.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.1	35.7	36.2	47.1	36.6	34.0	91.6	27.2	24.5	67.7	46.4	47.5
LnGrp LOS	E	D	D	D	D	C	F	C	C	E	D	D
Approach Vol, veh/h		1238			504			786			731	
Approach Delay, s/veh		40.4			37.4			56.1			50.9	
Approach LOS		D			D			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.6	39.7	24.0	26.8	22.5	25.7	14.1	36.7
Change Period (Y+Rc), s	4.6	6.5	4.6	* 6.5	4.6	* 6.5	4.6	6.5
Max Green Setting (Gmax), s	5.1	46.8	19.4	* 27	23.4	* 30	9.9	36.0
Max Q Clear Time (g_c+I1), s	3.6	27.7	21.4	18.2	17.7	11.5	9.7	10.7
Green Ext Time (p_c), s	0.0	5.5	0.0	2.0	0.2	2.3	0.0	2.3

Intersection Summary	
HCM 6th Ctrl Delay	46.1
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

APPENDIX 6.2: OPENING YEAR CUMULATIVE (2025) WITH PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

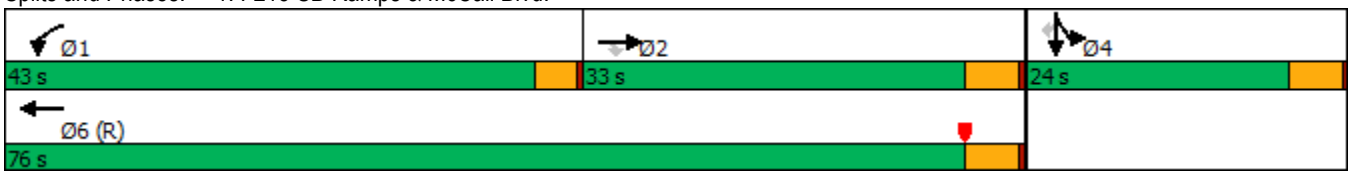
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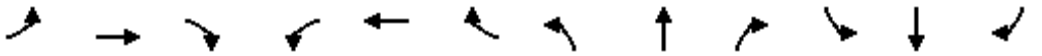
Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	890	437	659	1074	1	269
Future Volume (vph)	890	437	659	1074	1	269
Turn Type	NA	Perm	Prot	NA	NA	Perm
Protected Phases	2		1	6	4	
Permitted Phases		2				4
Detector Phase	2	2	1	6	4	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.0	22.0	9.0	20.0	20.0	20.0
Total Split (s)	33.0	33.0	43.0	76.0	24.0	24.0
Total Split (%)	33.0%	33.0%	43.0%	76.0%	24.0%	24.0%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	3.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	None	None	None	C-Max	Max	Max

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 61 (61%), Referenced to phase 6:WBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 1: I-215 SB Ramps & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	890	437	659	1074	0	0	0	0	283	1	269
Future Volume (veh/h)	0	890	437	659	1074	0	0	0	0	283	1	269
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1841	1885	1870	1856	0				1796	1900	1856
Adj Flow Rate, veh/h	0	918	0	679	1107	0				292	1	120
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	4	1	2	3	0				7	0	3
Cap, veh/h	0	997		704	2521	0				352	1	307
Arrive On Green	0.00	0.28	0.00	0.26	0.48	0.00				0.19	0.19	0.19
Sat Flow, veh/h	0	3589	1598	1781	3618	0				1804	6	1572
Grp Volume(v), veh/h	0	918	0	679	1107	0				293	0	120
Grp Sat Flow(s),veh/h/ln	0	1749	1598	1781	1763	0				1810	0	1572
Q Serve(g_s), s	0.0	25.4	0.0	37.6	20.7	0.0				15.5	0.0	6.7
Cycle Q Clear(g_c), s	0.0	25.4	0.0	37.6	20.7	0.0				15.5	0.0	6.7
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	997		704	2521	0				353	0	307
V/C Ratio(X)	0.00	0.92		0.97	0.44	0.00				0.83	0.00	0.39
Avail Cap(c_a), veh/h	0	997		704	2521	0				353	0	307
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.23	0.23	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	34.7	0.0	36.1	12.8	0.0				38.7	0.0	35.1
Incr Delay (d2), s/veh	0.0	13.1	0.0	9.5	0.1	0.0				19.8	0.0	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	11.9	0.0	18.3	8.5	0.0				8.5	0.0	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	47.8	0.0	45.6	12.9	0.0				58.5	0.0	38.8
LnGrp LOS	A	D		D	B	A				E	A	D
Approach Vol, veh/h		918			1786						413	
Approach Delay, s/veh		47.8			25.3						52.8	
Approach LOS		D			C						D	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	43.0	33.0		24.0		76.0						
Change Period (Y+Rc), s	3.5	4.5		4.5		4.5						
Max Green Setting (Gmax), s	39.5	28.5		19.5		71.5						
Max Q Clear Time (g_c+I1), s	39.6	27.4		17.5		22.7						
Green Ext Time (p_c), s	0.0	0.5		0.3		5.5						

Intersection Summary												
HCM 6th Ctrl Delay			35.6									
HCM 6th LOS			D									

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBT	WBR	NBT	NBR
Lane Configurations						
Traffic Volume (vph)	268	866	1447	513	0	303
Future Volume (vph)	268	866	1447	513	0	303
Turn Type	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	6		8	
Permitted Phases				6		8
Detector Phase	5	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	8.5	22.0	20.0	20.0	20.0	20.0
Total Split (s)	27.9	75.0	47.1	47.1	25.0	25.0
Total Split (%)	27.9%	75.0%	47.1%	47.1%	25.0%	25.0%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	Max	Max

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 2: I-215 NB Ramps & McCall Blvd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	268	866	0	0	1447	513	220	0	303	0	0	0
Future Volume (veh/h)	268	866	0	0	1447	513	220	0	303	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1811	1841	0	0	1856	1870	1870	1900	1796			
Adj Flow Rate, veh/h	285	921	0	0	1539	0	234	0	183			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	6	4	0	0	3	2	2	0	7			
Cap, veh/h	317	2466	0	0	1714		371	0	312			
Arrive On Green	0.18	0.70	0.00	0.00	0.49	0.00	0.20	0.00	0.20			
Sat Flow, veh/h	1725	3589	0	0	3618	1585	1810	0	1522			
Grp Volume(v), veh/h	285	921	0	0	1539	0	234	0	183			
Grp Sat Flow(s),veh/h/ln	1725	1749	0	0	1763	1585	1810	0	1522			
Q Serve(g_s), s	16.2	10.5	0.0	0.0	39.8	0.0	11.8	0.0	10.9			
Cycle Q Clear(g_c), s	16.2	10.5	0.0	0.0	39.8	0.0	11.8	0.0	10.9			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	317	2466	0	0	1714		371	0	312			
V/C Ratio(X)	0.90	0.37	0.00	0.00	0.90		0.63	0.00	0.59			
Avail Cap(c_a), veh/h	421	2466	0	0	1714		371	0	312			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.27	0.27	0.00	0.00	0.09	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	39.9	5.9	0.0	0.0	23.4	0.0	36.3	0.0	35.9			
Incr Delay (d2), s/veh	5.0	0.1	0.0	0.0	0.8	0.0	7.9	0.0	7.8			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	7.0	2.9	0.0	0.0	14.8	0.0	5.8	0.0	4.5			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.9	6.0	0.0	0.0	24.2	0.0	44.2	0.0	43.8			
LnGrp LOS	D	A	A	A	C		D	A	D			
Approach Vol, veh/h		1206			1539			417				
Approach Delay, s/veh		15.2			24.2			44.0				
Approach LOS		B			C			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		75.0			21.9	53.1		25.0				
Change Period (Y+Rc), s		4.5			3.5	4.5		4.5				
Max Green Setting (Gmax), s		70.5			24.4	42.6		20.5				
Max Q Clear Time (g_c+I1), s		12.5			18.2	41.8		13.8				
Green Ext Time (p_c), s		4.3			0.2	0.6		1.0				

Intersection Summary	
HCM 6th Ctrl Delay	23.4
HCM 6th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

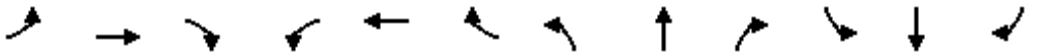
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	189	890	69	1551	185	37	67	33	25
Future Volume (vph)	189	890	69	1551	185	37	67	33	25
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA
Protected Phases	5	2	1	6		8			4
Permitted Phases					8		8	4	
Detector Phase	5	2	1	6	8	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	31.0	9.5	31.0	33.0	33.0	33.0	20.0	20.0
Total Split (s)	18.0	55.4	11.6	49.0	33.0	33.0	33.0	33.0	33.0
Total Split (%)	18.0%	55.4%	11.6%	49.0%	33.0%	33.0%	33.0%	33.0%	33.0%
Yellow Time (s)	3.5	5.0	3.5	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	4.5	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 93.3
Natural Cycle: 110
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Encanto Dr. & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	189	890	102	69	1551	33	185	37	67	33	25	247
Future Volume (veh/h)	189	890	102	69	1551	33	185	37	67	33	25	247
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.99	0.99		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	197	927	95	72	1616	34	193	39	37	34	26	215
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	228	1654	170	92	1542	32	237	509	427	409	47	391
Arrive On Green	0.13	0.51	0.51	0.05	0.43	0.43	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1781	3246	333	1781	3559	75	1139	1870	1568	1311	174	1438
Grp Volume(v), veh/h	197	507	515	72	805	845	193	39	37	34	0	241
Grp Sat Flow(s),veh/h/ln	1781	1777	1802	1781	1777	1857	1139	1870	1568	1311	0	1612
Q Serve(g_s), s	10.8	19.4	19.4	4.0	43.0	43.0	14.3	1.5	1.7	2.0	0.0	12.7
Cycle Q Clear(g_c), s	10.8	19.4	19.4	4.0	43.0	43.0	27.0	1.5	1.7	3.5	0.0	12.7
Prop In Lane	1.00		0.18	1.00		0.04	1.00		1.00	1.00		0.89
Lane Grp Cap(c), veh/h	228	906	918	92	770	805	237	509	427	409	0	439
V/C Ratio(X)	0.86	0.56	0.56	0.78	1.05	1.05	0.82	0.08	0.09	0.08	0.00	0.55
Avail Cap(c_a), veh/h	242	906	918	127	770	805	237	509	427	409	0	439
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.4	16.7	16.7	46.5	28.1	28.1	43.5	26.8	26.9	28.1	0.0	30.9
Incr Delay (d2), s/veh	23.5	0.5	0.5	12.2	45.1	45.5	18.2	0.0	0.0	0.0	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	7.2	7.3	2.0	26.0	27.3	6.0	0.7	0.7	0.6	0.0	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.9	17.2	17.2	58.7	73.2	73.6	61.7	26.9	27.0	28.2	0.0	31.8
LnGrp LOS	E	B	B	E	F	F	E	C	C	C	A	C
Approach Vol, veh/h		1219			1722			269			275	
Approach Delay, s/veh		25.0			72.8			51.9			31.3	
Approach LOS		C			E			D			C	

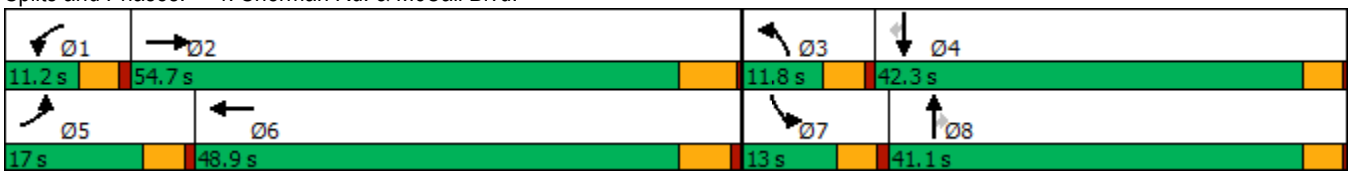
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.6	56.6		33.0	17.2	49.0		33.0				
Change Period (Y+Rc), s	4.5	6.0		6.0	4.5	6.0		6.0				
Max Green Setting (Gmax), s	7.1	49.4		27.0	13.5	43.0		27.0				
Max Q Clear Time (g_c+I1), s	6.0	21.4		14.7	12.8	45.0		29.0				
Green Ext Time (p_c), s	0.0	4.0		0.8	0.0	0.0		0.0				

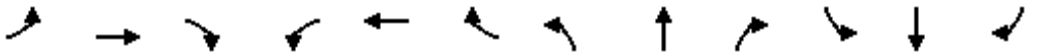
Intersection Summary			
HCM 6th Ctrl Delay		51.2	
HCM 6th LOS		D	

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	204	740	44	1371	102	44	22	161	49	239
Future Volume (vph)	204	740	44	1371	102	44	22	161	49	239
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2	1	6	3	8		7	4	
Permitted Phases							8			4
Detector Phase	5	2	1	6	3	8	8	7	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	38.7	9.6	38.8	9.6	41.1	41.1	9.6	41.1	41.1
Total Split (s)	17.0	54.7	11.2	48.9	11.8	41.1	41.1	13.0	42.3	42.3
Total Split (%)	14.2%	45.6%	9.3%	40.8%	9.8%	34.3%	34.3%	10.8%	35.3%	35.3%
Yellow Time (s)	3.6	5.2	3.6	4.8	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	0.5	1.0	1.0	1.0	0.5	0.5	1.0	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.7	4.6	5.8	4.6	4.1	4.1	4.6	4.1	4.1
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 99
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 4: Sherman Rd. & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	204	740	53	44	1371	116	102	44	22	161	49	239
Future Volume (veh/h)	204	740	53	44	1371	116	102	44	22	161	49	239
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.96	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	219	796	53	47	1474	119	110	47	19	173	53	195
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	229	1819	121	66	1487	119	133	262	213	155	285	241
Arrive On Green	0.13	0.54	0.54	0.04	0.45	0.45	0.07	0.14	0.14	0.09	0.15	0.15
Sat Flow, veh/h	1781	3382	225	1781	3332	267	1781	1870	1518	1781	1870	1582
Grp Volume(v), veh/h	219	418	431	47	782	811	110	47	19	173	53	195
Grp Sat Flow(s),veh/h/ln	1781	1777	1830	1781	1777	1822	1781	1870	1518	1781	1870	1582
Q Serve(g_s), s	11.8	13.7	13.7	2.5	42.0	42.8	5.9	2.1	1.1	8.4	2.4	11.5
Cycle Q Clear(g_c), s	11.8	13.7	13.7	2.5	42.0	42.8	5.9	2.1	1.1	8.4	2.4	11.5
Prop In Lane	1.00		0.12	1.00		0.15	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	229	956	984	66	793	814	133	262	213	155	285	241
V/C Ratio(X)	0.96	0.44	0.44	0.71	0.99	1.00	0.83	0.18	0.09	1.12	0.19	0.81
Avail Cap(c_a), veh/h	229	956	984	122	793	814	133	717	582	155	740	626
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.8	13.5	13.5	46.0	26.4	26.6	44.1	36.6	36.1	44.1	35.7	39.5
Incr Delay (d2), s/veh	47.0	0.3	0.3	5.2	28.4	30.6	31.6	0.3	0.2	106.8	0.3	6.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	4.9	5.1	1.2	22.0	23.4	3.8	1.0	0.4	8.3	1.1	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	88.8	13.8	13.8	51.1	54.8	57.3	75.7	36.9	36.3	150.9	36.0	45.8
LnGrp LOS	F	B	B	D	D	E	E	D	D	F	D	D
Approach Vol, veh/h		1068			1640			176			421	
Approach Delay, s/veh		29.2			55.9			61.1			87.8	
Approach LOS		C			E			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.2	57.7	11.8	18.8	17.0	48.9	13.0	17.6
Change Period (Y+Rc), s	4.6	* 5.8	4.6	4.1	4.6	5.8	4.6	4.1
Max Green Setting (Gmax), s	6.6	* 49	7.2	38.2	12.4	43.1	8.4	37.0
Max Q Clear Time (g_c+I1), s	4.5	15.7	7.9	13.5	13.8	44.8	10.4	4.1
Green Ext Time (p_c), s	0.0	5.4	0.0	0.9	0.0	0.0	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	51.6
HCM 6th LOS	D

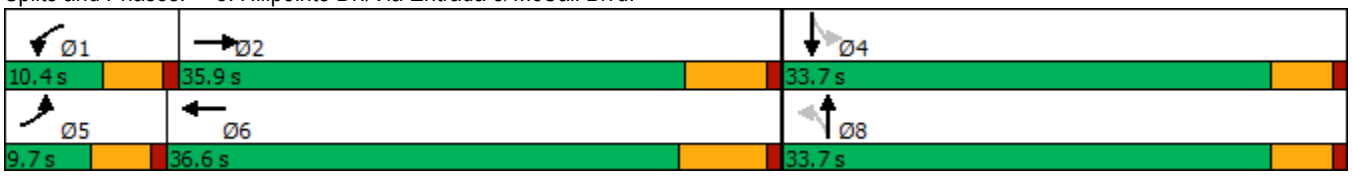
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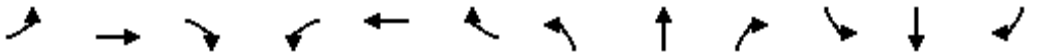
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	14	943	29	1485	106	3	32	16
Future Volume (vph)	14	943	29	1485	106	3	32	16
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases					8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	22.8	9.6	23.2	33.6	33.6	33.6	33.6
Total Split (s)	9.7	35.9	10.4	36.6	33.7	33.7	33.7	33.7
Total Split (%)	12.1%	44.9%	13.0%	45.8%	42.1%	42.1%	42.1%	42.1%
Yellow Time (s)	3.6	4.8	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.6	5.8	4.6	6.2		4.6		4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 56.3
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 5: Hillpointe Dr./Via Entrada & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	943	32	29	1485	23	106	3	37	32	16	47
Future Volume (veh/h)	14	943	32	29	1485	23	106	3	37	32	16	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	15	1014	30	31	1597	20	114	3	21	34	17	22
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	33	1797	53	62	1890	24	314	17	37	194	97	82
Arrive On Green	0.02	0.51	0.51	0.03	0.53	0.53	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1781	3524	104	1781	3594	45	1157	105	227	572	591	502
Grp Volume(v), veh/h	15	511	533	31	789	828	138	0	0	73	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1852	1781	1777	1862	1489	0	0	1664	0	0
Q Serve(g_s), s	0.4	10.5	10.5	0.9	20.0	20.1	2.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.4	10.5	10.5	0.9	20.0	20.1	4.2	0.0	0.0	1.9	0.0	0.0
Prop In Lane	1.00		0.06	1.00		0.02	0.83		0.15	0.47		0.30
Lane Grp Cap(c), veh/h	33	906	944	62	934	979	369	0	0	373	0	0
V/C Ratio(X)	0.45	0.56	0.56	0.50	0.84	0.85	0.37	0.00	0.00	0.20	0.00	0.00
Avail Cap(c_a), veh/h	172	1011	1054	195	1021	1070	910	0	0	966	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	25.7	8.9	8.9	25.1	10.7	10.7	20.1	0.0	0.0	19.3	0.0	0.0
Incr Delay (d2), s/veh	3.5	0.6	0.6	2.3	6.2	6.0	0.6	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.8	2.9	0.4	6.1	6.4	1.5	0.0	0.0	0.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.2	9.5	9.5	27.4	16.8	16.7	20.7	0.0	0.0	19.5	0.0	0.0
LnGrp LOS	C	A	A	C	B	B	C	A	A	B	A	A
Approach Vol, veh/h		1059			1648			138			73	
Approach Delay, s/veh		9.8			17.0			20.7			19.5	
Approach LOS		A			B			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.4	33.2		13.3	5.6	34.0		13.3				
Change Period (Y+Rc), s	4.6	* 6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	5.8	* 30		29.1	5.1	30.4		29.1				
Max Q Clear Time (g_c+I1), s	2.9	12.5		3.9	2.4	22.1		6.2				
Green Ext Time (p_c), s	0.0	5.9		0.3	0.0	5.7		0.8				

Intersection Summary		
HCM 6th Ctrl Delay		14.6
HCM 6th LOS		B

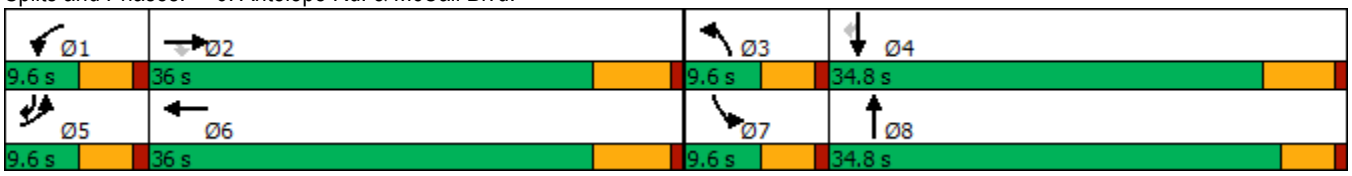
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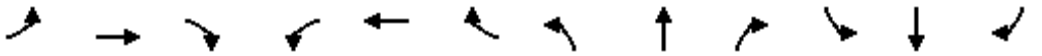
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	109	872	26	56	1274	53	21	50	11	216
Future Volume (vph)	109	872	26	56	1274	53	21	50	11	216
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA	pm+ov
Protected Phases	5	2		1	6	3	8	7	4	5
Permitted Phases			2							4
Detector Phase	5	2	2	1	6	3	8	7	4	5
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	35.2	35.2	9.6	35.2	9.6	33.6	9.6	34.8	9.6
Total Split (s)	9.6	36.0	36.0	9.6	36.0	9.6	34.8	9.6	34.8	9.6
Total Split (%)	10.7%	40.0%	40.0%	10.7%	40.0%	10.7%	38.7%	10.7%	38.7%	10.7%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6	5.8	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 67.3
Natural Cycle: 110
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Antelope Rd. & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	109	872	26	56	1274	76	53	21	79	50	11	216
Future Volume (veh/h)	109	872	26	56	1274	76	53	21	79	50	11	216
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	120	958	27	62	1400	81	58	23	51	55	12	177
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	129	1605	715	90	1467	85	86	74	164	84	268	341
Arrive On Green	0.07	0.45	0.45	0.05	0.43	0.43	0.05	0.14	0.14	0.05	0.14	0.14
Sat Flow, veh/h	1781	3554	1583	1781	3415	197	1781	510	1130	1781	1870	1582
Grp Volume(v), veh/h	120	958	27	62	727	754	58	0	74	55	12	177
Grp Sat Flow(s),veh/h/ln	1781	1777	1583	1781	1777	1835	1781	0	1640	1781	1870	1582
Q Serve(g_s), s	4.6	14.0	0.7	2.4	27.3	27.6	2.2	0.0	2.8	2.1	0.4	6.8
Cycle Q Clear(g_c), s	4.6	14.0	0.7	2.4	27.3	27.6	2.2	0.0	2.8	2.1	0.4	6.8
Prop In Lane	1.00		1.00	1.00		0.11	1.00		0.69	1.00		1.00
Lane Grp Cap(c), veh/h	129	1605	715	90	764	788	86	0	237	84	268	341
V/C Ratio(X)	0.93	0.60	0.04	0.69	0.95	0.96	0.67	0.00	0.31	0.65	0.04	0.52
Avail Cap(c_a), veh/h	129	1605	715	129	765	790	129	0	715	129	783	777
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.0	14.3	10.6	32.4	19.1	19.1	32.4	0.0	26.5	32.4	25.6	24.0
Incr Delay (d2), s/veh	58.2	0.6	0.0	3.5	21.5	22.0	3.3	0.0	0.7	3.2	0.1	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	4.6	0.2	1.0	13.4	14.0	1.0	0.0	1.1	0.9	0.2	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	90.2	14.9	10.6	35.9	40.6	41.1	35.7	0.0	27.3	35.6	25.6	25.2
LnGrp LOS	F	B	B	D	D	D	D	A	C	D	C	C
Approach Vol, veh/h		1105			1543			132			244	
Approach Delay, s/veh		22.9			40.7			31.0			27.6	
Approach LOS		C			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.1	37.5	8.0	15.7	9.6	36.0	7.9	15.8
Change Period (Y+Rc), s	4.6	6.2	4.6	5.8	4.6	6.2	4.6	* 5.8
Max Green Setting (Gmax), s	5.0	29.8	5.0	29.0	5.0	29.8	5.0	* 30
Max Q Clear Time (g_c+I1), s	4.4	16.0	4.2	8.8	6.6	29.6	4.1	4.8
Green Ext Time (p_c), s	0.0	5.1	0.0	0.5	0.0	0.2	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	32.7
HCM 6th LOS	C

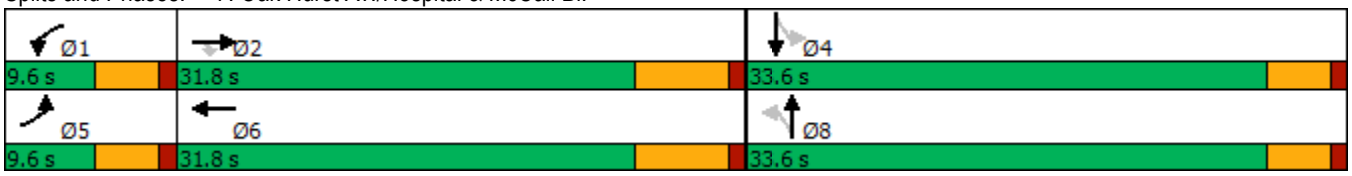
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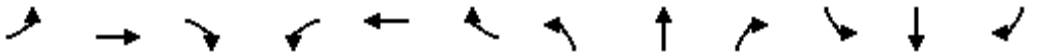
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	2	1011	10	27	1351	32	1	15	1
Future Volume (vph)	2	1011	10	27	1351	32	1	15	1
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2		1	6		8		4
Permitted Phases			2			8		4	
Detector Phase	5	2	2	1	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	23.2	23.2	9.6	23.2	33.6	33.6	14.6	14.6
Total Split (s)	9.6	31.8	31.8	9.6	31.8	33.6	33.6	33.6	33.6
Total Split (%)	12.8%	42.4%	42.4%	12.8%	42.4%	44.8%	44.8%	44.8%	44.8%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2		4.6		4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 48.2
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 7: Oak Hurst Av./Hospital & McCall Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	1011	10	27	1351	6	32	1	34	15	1	0
Future Volume (veh/h)	2	1011	10	27	1351	6	32	1	34	15	1	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	1136	11	30	1518	7	36	1	18	17	1	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	5	1748	780	62	1902	9	228	27	56	320	14	0
Arrive On Green	0.00	0.49	0.49	0.04	0.52	0.52	0.11	0.11	0.11	0.11	0.11	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3627	17	784	244	500	1388	128	0
Grp Volume(v), veh/h	2	1136	11	30	743	782	55	0	0	18	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1867	1529	0	0	1515	0	0
Q Serve(g_s), s	0.0	10.2	0.2	0.7	14.6	14.6	0.4	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	10.2	0.2	0.7	14.6	14.6	1.3	0.0	0.0	0.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	0.65		0.33	0.94		0.00
Lane Grp Cap(c), veh/h	5	1748	780	62	932	979	311	0	0	334	0	0
V/C Ratio(X)	0.41	0.65	0.01	0.48	0.80	0.80	0.18	0.00	0.00	0.05	0.00	0.00
Avail Cap(c_a), veh/h	209	2131	950	209	1065	1120	1147	0	0	1136	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	21.3	8.1	5.5	20.2	8.3	8.3	17.4	0.0	0.0	17.0	0.0	0.0
Incr Delay (d2), s/veh	19.1	0.5	0.0	2.1	3.9	3.7	0.3	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.0	0.0	0.3	3.4	3.5	0.5	0.0	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.3	8.6	5.6	22.3	12.2	12.0	17.6	0.0	0.0	17.1	0.0	0.0
LnGrp LOS	D	A	A	C	B	B	B	A	A	B	A	A
Approach Vol, veh/h		1149			1555			55			18	
Approach Delay, s/veh		8.6			12.3			17.6			17.1	
Approach LOS		A			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.1	27.2		9.4	4.7	28.6		9.4				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	5.0	25.6		29.0	5.0	25.6		29.0				
Max Q Clear Time (g_c+I1), s	2.7	12.2		2.4	2.0	16.6		3.3				
Green Ext Time (p_c), s	0.0	6.0		0.0	0.0	5.8		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		10.9	
HCM 6th LOS		B	

Intersection	
Int Delay, s/veh	3.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	77	27	162	54	24	292
Future Vol, veh/h	77	27	162	54	24	292
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	64	64	64	64	64	64
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	120	42	253	84	38	456

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	827	295	0	0	337	0
Stage 1	295	-	-	-	-	-
Stage 2	532	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	341	744	-	-	1222	-
Stage 1	755	-	-	-	-	-
Stage 2	589	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	327	744	-	-	1222	-
Mov Cap-2 Maneuver	327	-	-	-	-	-
Stage 1	755	-	-	-	-	-
Stage 2	564	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21.2	0	0.6
HCM LOS	C		

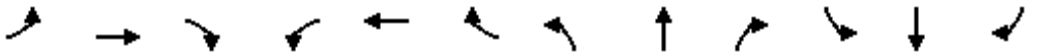
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	383	1222	-
HCM Lane V/C Ratio	-	-	0.424	0.031	-
HCM Control Delay (s)	-	-	21.2	8	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	2.1	0.1	-

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	218	854	6	1139	77	5	1	167	2
Future Volume (vph)	218	854	6	1139	77	5	1	167	2
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2	1	6			8		4
Permitted Phases					6	8		4	
Detector Phase	5	2	1	6	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	23.2	9.6	23.2	23.2	22.6	22.6	33.6	33.6
Total Split (s)	19.0	46.8	9.6	37.4	37.4	33.6	33.6	33.6	33.6
Total Split (%)	21.1%	52.0%	10.7%	41.6%	41.6%	37.3%	37.3%	37.3%	37.3%
Yellow Time (s)	3.6	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	6.2		4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 79.2
Natural Cycle: 110
Control Type: Actuated-Uncoordinated

Splits and Phases: 9: Junipero Rd. & McCall Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	218	854	1	6	1139	77	5	1	7	167	2	239
Future Volume (veh/h)	218	854	1	6	1139	77	5	1	7	167	2	239
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	269	1054	1	7	1406	72	6	1	2	206	2	197
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	310	1094	1	16	1493	666	152	31	29	368	3	308
Arrive On Green	0.17	0.59	0.59	0.01	0.42	0.42	0.20	0.20	0.20	0.20	0.20	0.20
Sat Flow, veh/h	1781	1868	2	1781	3554	1585	360	157	148	1414	16	1569
Grp Volume(v), veh/h	269	0	1055	7	1406	72	9	0	0	206	0	199
Grp Sat Flow(s),veh/h/ln	1781	0	1870	1781	1777	1585	665	0	0	1414	0	1585
Q Serve(g_s), s	10.8	0.0	39.5	0.3	27.9	2.0	0.1	0.0	0.0	2.0	0.0	8.5
Cycle Q Clear(g_c), s	10.8	0.0	39.5	0.3	27.9	2.0	8.5	0.0	0.0	10.6	0.0	8.5
Prop In Lane	1.00		0.00	1.00		1.00	0.67		0.22	1.00		0.99
Lane Grp Cap(c), veh/h	310	0	1095	16	1493	666	212	0	0	368	0	311
V/C Ratio(X)	0.87	0.00	0.96	0.43	0.94	0.11	0.04	0.00	0.00	0.56	0.00	0.64
Avail Cap(c_a), veh/h	348	0	1095	121	1506	672	471	0	0	647	0	624
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.6	0.0	14.5	36.3	20.5	13.0	24.3	0.0	0.0	28.1	0.0	27.2
Incr Delay (d2), s/veh	17.0	0.0	19.0	6.7	12.0	0.1	0.1	0.0	0.0	1.3	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	0.0	17.2	0.1	11.9	0.6	0.1	0.0	0.0	3.5	0.0	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.6	0.0	33.6	43.0	32.4	13.0	24.4	0.0	0.0	29.4	0.0	29.4
LnGrp LOS	D	A	C	D	C	B	C	A	A	C	A	C
Approach Vol, veh/h		1324			1485			9			405	
Approach Delay, s/veh		36.2			31.6			24.4			29.4	
Approach LOS		D			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.3	49.3		19.1	17.4	37.1		19.1				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	5.0	40.6		29.0	14.4	31.2		29.0				
Max Q Clear Time (g_c+I1), s	2.3	41.5		12.6	12.8	29.9		10.5				
Green Ext Time (p_c), s	0.0	0.0		1.7	0.1	1.0		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		33.2	
HCM 6th LOS		C	

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	55	14	6	62	10	29	0	18	15	0	6
Future Vol, veh/h	3	55	14	6	62	10	29	0	18	15	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	72	18	8	82	13	38	0	24	20	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	95	0	0	90	0	0	198	200	81	206	203	89
Stage 1	-	-	-	-	-	-	89	89	-	105	105	-
Stage 2	-	-	-	-	-	-	109	111	-	101	98	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1499	-	-	1505	-	-	761	696	979	752	693	969
Stage 1	-	-	-	-	-	-	918	821	-	901	808	-
Stage 2	-	-	-	-	-	-	896	804	-	905	814	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1499	-	-	1505	-	-	750	690	979	729	687	969
Mov Cap-2 Maneuver	-	-	-	-	-	-	750	690	-	729	687	-
Stage 1	-	-	-	-	-	-	915	819	-	898	803	-
Stage 2	-	-	-	-	-	-	883	799	-	880	812	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.6	9.7	9.8
HCM LOS			A	A

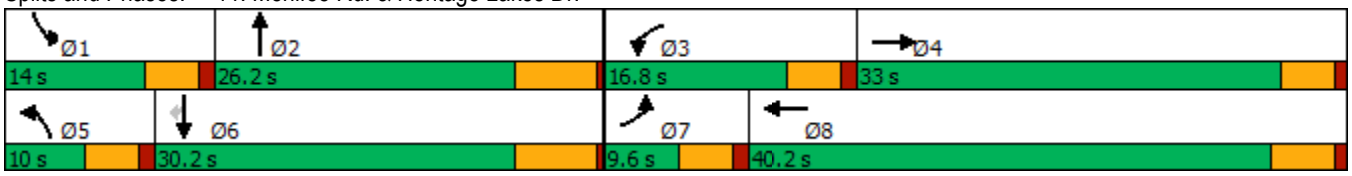
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	824	1499	-	-	1505	-	-	785
HCM Lane V/C Ratio	0.075	0.003	-	-	0.005	-	-	0.035
HCM Control Delay (s)	9.7	7.4	0	-	7.4	0	-	9.8
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.1

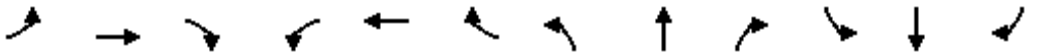
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	33	23	89	24	30	804	95	715	30
Future Volume (vph)	33	23	89	24	30	804	95	715	30
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2	1	6	
Permitted Phases									6
Detector Phase	7	4	3	8	5	2	1	6	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	14.6	9.6	40.2	9.6	26.0	9.6	26.0	26.0
Total Split (s)	9.6	33.0	16.8	40.2	10.0	26.2	14.0	30.2	30.2
Total Split (%)	10.7%	36.7%	18.7%	44.7%	11.1%	29.1%	15.6%	33.6%	33.6%
Yellow Time (s)	3.6	3.6	3.6	4.2	3.6	5.5	3.6	5.5	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	0.5	1.0	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	5.2	4.6	6.0	4.6	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 65.6
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 11: Menifee Rd. & Heritage Lakes Dr.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	23	36	89	24	159	30	804	45	95	715	30
Future Volume (veh/h)	33	23	36	89	24	159	30	804	45	95	715	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	41	29	19	111	30	98	38	1005	41	119	894	32
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	77	154	101	143	71	230	72	1474	60	153	1203	525
Arrive On Green	0.04	0.15	0.15	0.08	0.18	0.18	0.04	0.29	0.29	0.09	0.34	0.34
Sat Flow, veh/h	1781	1048	687	1781	382	1249	1781	5027	205	1781	3554	1550
Grp Volume(v), veh/h	41	0	48	111	0	128	38	680	366	119	894	32
Grp Sat Flow(s),veh/h/ln	1781	0	1735	1781	0	1632	1781	1702	1827	1781	1777	1550
Q Serve(g_s), s	1.2	0.0	1.3	3.2	0.0	3.6	1.1	9.2	9.2	3.4	11.5	0.7
Cycle Q Clear(g_c), s	1.2	0.0	1.3	3.2	0.0	3.6	1.1	9.2	9.2	3.4	11.5	0.7
Prop In Lane	1.00		0.40	1.00		0.77	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	77	0	255	143	0	301	72	998	536	153	1203	525
V/C Ratio(X)	0.54	0.00	0.19	0.77	0.00	0.43	0.52	0.68	0.68	0.78	0.74	0.06
Avail Cap(c_a), veh/h	172	0	950	419	0	1101	185	1326	712	323	1658	723
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.3	0.0	19.4	23.4	0.0	18.7	24.4	16.2	16.2	23.2	15.2	11.6
Incr Delay (d2), s/veh	2.1	0.0	0.4	3.3	0.0	1.0	2.2	0.9	1.7	3.2	1.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.5	1.3	0.0	1.3	0.4	2.7	3.1	1.3	3.5	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.5	0.0	19.8	26.7	0.0	19.7	26.6	17.1	17.9	26.4	16.3	11.6
LnGrp LOS	C	A	B	C	A	B	C	B	B	C	B	B
Approach Vol, veh/h		89			239			1084			1045	
Approach Delay, s/veh		22.8			22.9			17.7			17.3	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.1	21.2	8.8	12.8	6.7	23.6	6.8	14.8
Change Period (Y+Rc), s	4.6	6.0	4.6	* 5.2	4.6	6.0	4.6	5.2
Max Green Setting (Gmax), s	9.4	20.2	12.2	* 28	5.4	24.2	5.0	35.0
Max Q Clear Time (g_c+I1), s	5.4	11.2	5.2	3.3	3.1	13.5	3.2	5.6
Green Ext Time (p_c), s	0.0	3.9	0.1	0.2	0.0	4.0	0.0	0.7

Intersection Summary	
HCM 6th Ctrl Delay	18.2
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	26	0	881	845	3
Future Vol, veh/h	0	26	0	881	845	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	28	0	958	918	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	461	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-	-
Pot Cap-1 Maneuver	0	468	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	468	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.2	0	0
HCM LOS	B		

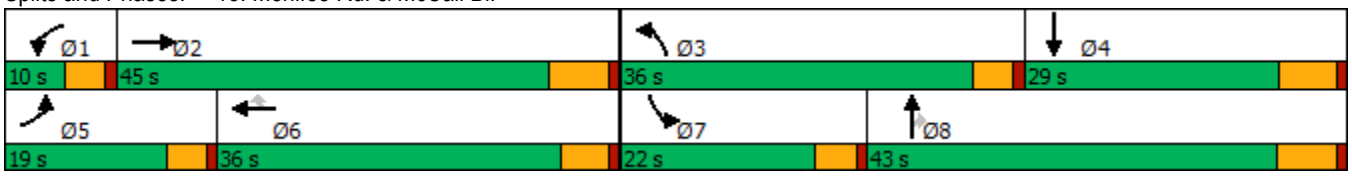
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	468	-	-
HCM Lane V/C Ratio	-	0.06	-	-
HCM Control Delay (s)	-	13.2	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.2	-	-

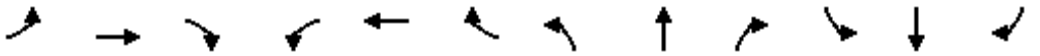
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	195	422	53	546	249	489	426	38	197	447
Future Volume (vph)	195	422	53	546	249	489	426	38	197	447
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	5	2	1	6		3	8		7	4
Permitted Phases					6			8		
Detector Phase	5	2	1	6	6	3	8	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	33.5	9.6	33.5	33.5	9.6	42.5	42.5	9.6	16.5
Total Split (s)	19.0	45.0	10.0	36.0	36.0	36.0	43.0	43.0	22.0	29.0
Total Split (%)	15.8%	37.5%	8.3%	30.0%	30.0%	30.0%	35.8%	35.8%	18.3%	24.2%
Yellow Time (s)	3.6	5.5	3.6	4.4	4.4	3.6	5.5	5.5	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.5	4.6	5.4	5.4	4.6	6.5	6.5	4.6	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 117.6
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 13: Menifee Rd. & McCall Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	195	422	423	53	546	249	489	426	38	197	447	218
Future Volume (veh/h)	195	422	423	53	546	249	489	426	38	197	447	218
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			Yes			Yes	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1859	1859	1859
Adj Flow Rate, veh/h	241	521	445	65	674	177	604	526	30	243	552	189
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	219	566	483	130	804	359	477	1114	490	263	500	171
Arrive On Green	0.12	0.31	0.31	0.04	0.23	0.23	0.27	0.31	0.31	0.15	0.19	0.19
Sat Flow, veh/h	1781	1816	1551	3456	3554	1585	1781	3554	1563	1771	2575	878
Grp Volume(v), veh/h	241	510	456	65	674	177	604	526	30	243	378	363
Grp Sat Flow(s),veh/h/ln	1781	1777	1591	1728	1777	1585	1781	1777	1563	1771	1766	1687
Q Serve(g_s), s	14.4	32.5	32.5	2.2	21.3	11.4	31.4	14.0	1.6	15.9	22.8	22.8
Cycle Q Clear(g_c), s	14.4	32.5	32.5	2.2	21.3	11.4	31.4	14.0	1.6	15.9	22.8	22.8
Prop In Lane	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.52
Lane Grp Cap(c), veh/h	219	553	496	130	804	359	477	1114	490	263	343	328
V/C Ratio(X)	1.10	0.92	0.92	0.50	0.84	0.49	1.27	0.47	0.06	0.93	1.10	1.11
Avail Cap(c_a), veh/h	219	583	522	159	927	413	477	1114	490	263	343	328
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.5	39.0	39.0	55.4	43.4	39.5	43.0	32.4	28.2	49.3	47.3	47.3
Incr Delay (d2), s/veh	91.0	19.6	21.3	1.1	6.1	1.1	136.1	0.3	0.1	35.7	78.7	81.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.7	16.3	14.9	0.9	9.8	4.3	30.9	5.7	0.6	9.3	17.0	16.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	142.5	58.6	60.3	56.5	49.5	40.6	179.0	32.8	28.2	85.0	126.0	129.1
LnGrp LOS	F	E	E	E	D	D	F	C	C	F	F	F
Approach Vol, veh/h		1207			916			1160			984	
Approach Delay, s/veh		76.0			48.3			108.8			117.0	
Approach LOS		E			D			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.0	43.0	36.0	29.3	19.0	33.0	22.0	43.3
Change Period (Y+Rc), s	4.6	6.5	4.6	* 6.5	4.6	* 6.5	4.6	6.5
Max Green Setting (Gmax), s	5.4	38.5	31.4	* 23	14.4	* 31	17.4	36.5
Max Q Clear Time (g_c+I1), s	4.2	34.5	33.4	24.8	16.4	23.3	17.9	16.0
Green Ext Time (p_c), s	0.0	2.1	0.0	0.0	0.0	2.9	0.0	3.0

Intersection Summary	
HCM 6th Ctrl Delay	88.4
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

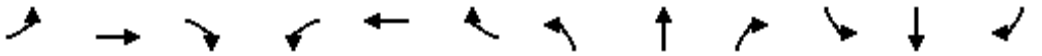
Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1246	407	444	1204	0	554
Future Volume (vph)	1246	407	444	1204	0	554
Turn Type	NA	Perm	Prot	NA	NA	Perm
Protected Phases	2		1	6	4	
Permitted Phases		2				4
Detector Phase	2	2	1	6	4	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.0	22.0	9.0	20.0	20.0	20.0
Total Split (s)	37.0	37.0	26.0	63.0	37.0	37.0
Total Split (%)	37.0%	37.0%	26.0%	63.0%	37.0%	37.0%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	3.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	None	None	None	C-Max	Max	Max

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 61 (61%), Referenced to phase 6:WBT, Start of Yellow
Natural Cycle: 110
Control Type: Actuated-Coordinated

Splits and Phases: 1: I-215 SB Ramps & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1246	407	444	1204	0	0	0	0	534	0	554
Future Volume (veh/h)	0	1246	407	444	1204	0	0	0	0	534	0	554
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1885	1885	0				1870	1900	1885
Adj Flow Rate, veh/h	0	1271	0	453	1229	0				545	0	397
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98
Percent Heavy Veh, %	0	2	2	1	1	0				2	0	1
Cap, veh/h	0	1155		404	2095	0				588	0	519
Arrive On Green	0.00	0.32	0.00	0.22	0.58	0.00				0.32	0.00	0.32
Sat Flow, veh/h	0	3647	1585	1795	3676	0				1810	0	1598
Grp Volume(v), veh/h	0	1271	0	453	1229	0				545	0	397
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1795	1791	0				1810	0	1598
Q Serve(g_s), s	0.0	32.5	0.0	22.5	21.7	0.0				29.1	0.0	22.3
Cycle Q Clear(g_c), s	0.0	32.5	0.0	22.5	21.7	0.0				29.1	0.0	22.3
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1155		404	2095	0				588	0	519
V/C Ratio(X)	0.00	1.10		1.12	0.59	0.00				0.93	0.00	0.76
Avail Cap(c_a), veh/h	0	1155		404	2095	0				588	0	519
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.09	0.09	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	33.8	0.0	38.8	13.1	0.0				32.6	0.0	30.3
Incr Delay (d2), s/veh	0.0	58.4	0.0	58.1	0.1	0.0				22.9	0.0	10.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	22.3	0.0	15.9	7.5	0.0				15.6	0.0	9.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	92.2	0.0	96.9	13.2	0.0				55.5	0.0	40.6
LnGrp LOS	A	F		F	B	A				E	A	D
Approach Vol, veh/h		1271			1682						942	
Approach Delay, s/veh		92.2			35.7						49.2	
Approach LOS		F			D						D	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	26.0	37.0		37.0		63.0
Change Period (Y+Rc), s	3.5	4.5		4.5		4.5
Max Green Setting (Gmax), s	22.5	32.5		32.5		58.5
Max Q Clear Time (g_c+I1), s	24.5	34.5		31.1		23.7
Green Ext Time (p_c), s	0.0	0.0		0.5		6.2

Intersection Summary		
HCM 6th Ctrl Delay		57.4
HCM 6th LOS		E

Notes

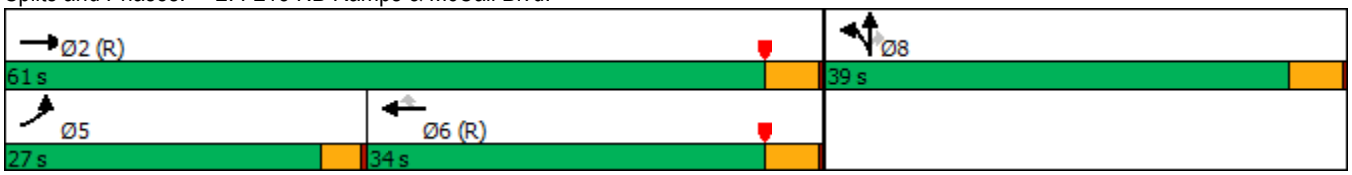
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

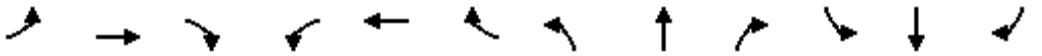
Lane Group	EBL	EBT	WBT	WBR	NBT	NBR
Lane Configurations						
Traffic Volume (vph)	334	1389	1162	321	0	674
Future Volume (vph)	334	1389	1162	321	0	674
Turn Type	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	6		8	
Permitted Phases				6		8
Detector Phase	5	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	8.5	22.0	20.0	20.0	20.0	20.0
Total Split (s)	27.0	61.0	34.0	34.0	39.0	39.0
Total Split (%)	27.0%	61.0%	34.0%	34.0%	39.0%	39.0%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	Max	Max

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection
Natural Cycle: 100
Control Type: Actuated-Coordinated

Splits and Phases: 2: I-215 NB Ramps & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	334	1389	0	0	1162	321	439	0	674	0	0	0
Future Volume (veh/h)	334	1389	0	0	1162	321	439	0	674	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1900	1856	1885	1900	1870			
Adj Flow Rate, veh/h	344	1432	0	0	1198	0	453	0	568			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	2	2	0	0	0	3	1	0	2			
Cap, veh/h	375	2008	0	0	1153		624	0	547			
Arrive On Green	0.21	0.56	0.00	0.00	0.32	0.00	0.34	0.00	0.34			
Sat Flow, veh/h	1781	3647	0	0	3705	1572	1810	0	1585			
Grp Volume(v), veh/h	344	1432	0	0	1198	0	453	0	568			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1805	1572	1810	0	1585			
Q Serve(g_s), s	18.9	29.4	0.0	0.0	31.9	0.0	21.9	0.0	34.5			
Cycle Q Clear(g_c), s	18.9	29.4	0.0	0.0	31.9	0.0	21.9	0.0	34.5			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	375	2008	0	0	1153		624	0	547			
V/C Ratio(X)	0.92	0.71	0.00	0.00	1.04		0.73	0.00	1.04			
Avail Cap(c_a), veh/h	419	2008	0	0	1153		624	0	547			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	0.38	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	38.6	15.8	0.0	0.0	34.0	0.0	28.6	0.0	32.8			
Incr Delay (d2), s/veh	3.0	0.2	0.0	0.0	27.5	0.0	7.2	0.0	48.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	8.1	10.3	0.0	0.0	17.4	0.0	10.1	0.0	19.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.6	16.0	0.0	0.0	61.5	0.0	35.8	0.0	81.6			
LnGrp LOS	D	B	A	A	F		D	A	F			
Approach Vol, veh/h		1776			1198			1021				
Approach Delay, s/veh		21.0			61.5			61.3				
Approach LOS		C			E			E				

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		61.0			24.6	36.4		39.0				
Change Period (Y+Rc), s		4.5			3.5	4.5		4.5				
Max Green Setting (Gmax), s		56.5			23.5	29.5		34.5				
Max Q Clear Time (g_c+I1), s		31.4			20.9	33.9		36.5				
Green Ext Time (p_c), s		7.3			0.2	0.0		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			43.4									
HCM 6th LOS			D									

Notes

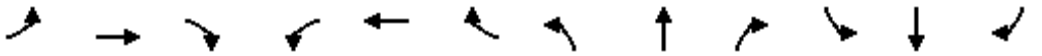
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	249	1644	55	1148	173	34	52	49	40
Future Volume (vph)	249	1644	55	1148	173	34	52	49	40
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA
Protected Phases	5	2	1	6		8			4
Permitted Phases					8		8	4	
Detector Phase	5	2	1	6	8	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	31.0	9.5	31.0	33.0	33.0	33.0	20.0	20.0
Total Split (s)	21.0	56.0	11.0	46.0	33.0	33.0	33.0	33.0	33.0
Total Split (%)	21.0%	56.0%	11.0%	46.0%	33.0%	33.0%	33.0%	33.0%	33.0%
Yellow Time (s)	3.5	5.0	3.5	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	4.5	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 88.9
Natural Cycle: 110
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Encanto Dr. & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	249	1644	257	55	1148	30	173	34	52	49	40	221
Future Volume (veh/h)	249	1644	257	55	1148	30	173	34	52	49	40	221
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	259	1712	231	57	1196	30	180	35	45	51	42	156
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	291	1634	215	73	1401	35	276	506	428	412	94	349
Arrive On Green	0.16	0.52	0.52	0.04	0.40	0.40	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1781	3156	416	1781	3542	89	1185	1870	1582	1316	347	1291
Grp Volume(v), veh/h	259	947	996	57	600	626	180	35	45	51	0	198
Grp Sat Flow(s),veh/h/ln	1781	1777	1795	1781	1777	1854	1185	1870	1582	1316	0	1638
Q Serve(g_s), s	13.7	50.0	50.0	3.1	29.7	29.8	14.4	1.3	2.1	2.9	0.0	9.7
Cycle Q Clear(g_c), s	13.7	50.0	50.0	3.1	29.7	29.8	24.1	1.3	2.1	4.2	0.0	9.7
Prop In Lane	1.00		0.23	1.00		0.05	1.00		1.00	1.00		0.79
Lane Grp Cap(c), veh/h	291	920	929	73	703	734	276	506	428	412	0	443
V/C Ratio(X)	0.89	1.03	1.07	0.78	0.85	0.85	0.65	0.07	0.11	0.12	0.00	0.45
Avail Cap(c_a), veh/h	304	920	929	120	736	768	287	523	442	424	0	458
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.6	23.3	23.3	45.9	26.6	26.6	39.2	26.2	26.5	27.8	0.0	29.2
Incr Delay (d2), s/veh	24.4	37.3	50.8	6.5	8.7	8.4	3.8	0.0	0.0	0.0	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.7	27.4	31.2	1.4	13.2	13.7	4.4	0.6	0.8	0.9	0.0	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.0	60.6	74.1	52.4	35.3	35.0	43.0	26.2	26.5	27.8	0.0	29.5
LnGrp LOS	E	F	F	D	D	D	D	C	C	C	A	C
Approach Vol, veh/h		2202			1283			260			249	
Approach Delay, s/veh		67.1			35.9			37.9			29.2	
Approach LOS		E			D			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.5	56.0		32.1	20.3	44.2		32.1				
Change Period (Y+Rc), s	4.5	6.0		6.0	4.5	6.0		6.0				
Max Green Setting (Gmax), s	6.5	50.0		27.0	16.5	40.0		27.0				
Max Q Clear Time (g_c+I1), s	5.1	52.0		11.7	15.7	31.8		26.1				
Green Ext Time (p_c), s	0.0	0.0		0.7	0.0	3.2		0.1				

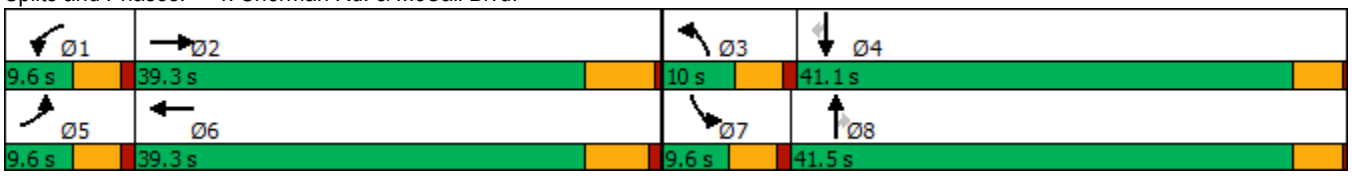
Intersection Summary			
HCM 6th Ctrl Delay		52.8	
HCM 6th LOS		D	

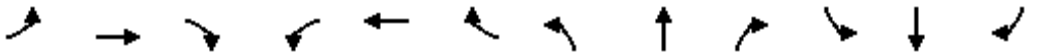
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	144	1425	29	964	97	23	31	73	20	81
Future Volume (vph)	144	1425	29	964	97	23	31	73	20	81
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2	1	6	3	8		7	4	
Permitted Phases							8			4
Detector Phase	5	2	1	6	3	8	8	7	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	38.7	9.6	38.8	9.6	41.1	41.1	9.6	41.1	41.1
Total Split (s)	9.6	39.3	9.6	39.3	10.0	41.5	41.5	9.6	41.1	41.1
Total Split (%)	9.6%	39.3%	9.6%	39.3%	10.0%	41.5%	41.5%	9.6%	41.1%	41.1%
Yellow Time (s)	3.6	5.2	3.6	4.8	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	0.5	1.0	1.0	1.0	0.5	0.5	1.0	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.7	4.6	5.8	4.6	4.1	4.1	4.6	4.1	4.1
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 73.2
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 4: Sherman Rd. & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	144	1425	86	29	964	98	97	23	31	73	20	81
Future Volume (veh/h)	144	1425	86	29	964	98	97	23	31	73	20	81
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.96	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	155	1532	86	31	1037	103	104	25	22	78	22	75
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	131	1659	93	58	1449	144	133	272	221	101	238	202
Arrive On Green	0.07	0.48	0.48	0.03	0.44	0.44	0.07	0.15	0.15	0.06	0.13	0.13
Sat Flow, veh/h	1781	3422	191	1781	3265	324	1781	1870	1520	1781	1870	1582
Grp Volume(v), veh/h	155	792	826	31	564	576	104	25	22	78	22	75
Grp Sat Flow(s),veh/h/ln	1781	1777	1836	1781	1777	1812	1781	1870	1520	1781	1870	1582
Q Serve(g_s), s	5.0	28.2	28.7	1.2	17.6	17.6	3.9	0.8	0.9	2.9	0.7	3.0
Cycle Q Clear(g_c), s	5.0	28.2	28.7	1.2	17.6	17.6	3.9	0.8	0.9	2.9	0.7	3.0
Prop In Lane	1.00		0.10	1.00		0.18	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	131	861	890	58	789	804	133	272	221	101	238	202
V/C Ratio(X)	1.18	0.92	0.93	0.53	0.72	0.72	0.78	0.09	0.10	0.77	0.09	0.37
Avail Cap(c_a), veh/h	131	877	906	131	874	892	141	1028	835	131	1017	860
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.5	16.3	16.4	32.4	15.4	15.4	31.0	25.2	25.2	31.7	26.2	27.2
Incr Delay (d2), s/veh	136.7	14.5	15.2	2.8	2.5	2.5	20.7	0.1	0.2	13.8	0.2	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.9	12.3	13.0	0.5	6.3	6.4	2.4	0.4	0.3	1.6	0.3	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	168.3	30.9	31.6	35.2	17.9	17.9	51.6	25.3	25.4	45.4	26.4	28.3
LnGrp LOS	F	C	C	D	B	B	D	C	C	D	C	C
Approach Vol, veh/h		1773			1171			151			175	
Approach Delay, s/veh		43.2			18.4			43.5			35.7	
Approach LOS		D			B			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.8	38.8	9.7	12.8	9.6	36.0	8.5	14.0
Change Period (Y+Rc), s	4.6	* 5.8	4.6	4.1	4.6	5.8	4.6	4.1
Max Green Setting (Gmax), s	5.0	* 34	5.4	37.0	5.0	33.5	5.0	37.4
Max Q Clear Time (g_c+I1), s	3.2	30.7	5.9	5.0	7.0	19.6	4.9	2.9
Green Ext Time (p_c), s	0.0	2.3	0.0	0.3	0.0	5.8	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	33.9
HCM 6th LOS	C

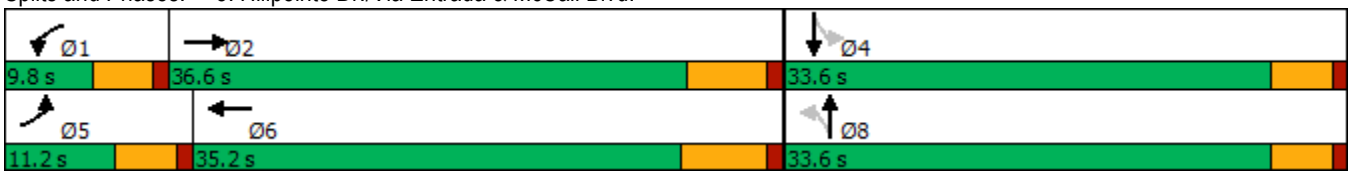
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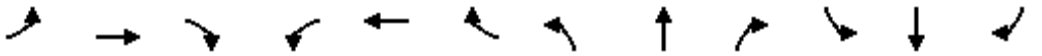
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	50	1489	28	1121	72	2	15	4
Future Volume (vph)	50	1489	28	1121	72	2	15	4
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases					8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	22.8	9.6	23.2	33.6	33.6	33.6	33.6
Total Split (s)	11.2	36.6	9.8	35.2	33.6	33.6	33.6	33.6
Total Split (%)	14.0%	45.8%	12.3%	44.0%	42.0%	42.0%	42.0%	42.0%
Yellow Time (s)	3.6	4.8	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.6	5.8	4.6	6.2		4.6		4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 57.9
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 5: Hillpointe Dr./Via Entrada & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	1489	122	28	1121	12	72	2	20	15	4	32
Future Volume (veh/h)	50	1489	122	28	1121	12	72	2	20	15	4	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	52	1551	117	29	1168	11	75	2	13	16	4	8
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	90	1812	136	58	1887	18	281	16	29	206	59	64
Arrive On Green	0.05	0.54	0.54	0.03	0.52	0.52	0.14	0.14	0.14	0.14	0.14	0.14
Sat Flow, veh/h	1781	3351	251	1781	3607	34	1142	115	212	725	427	461
Grp Volume(v), veh/h	52	818	850	29	575	604	90	0	0	28	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1825	1781	1777	1864	1470	0	0	1613	0	0
Q Serve(g_s), s	1.5	20.9	21.4	0.9	12.2	12.2	2.1	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.5	20.9	21.4	0.9	12.2	12.2	2.9	0.0	0.0	0.7	0.0	0.0
Prop In Lane	1.00		0.14	1.00		0.02	0.83		0.14	0.57		0.29
Lane Grp Cap(c), veh/h	90	961	987	58	929	975	327	0	0	329	0	0
V/C Ratio(X)	0.58	0.85	0.86	0.50	0.62	0.62	0.28	0.00	0.00	0.09	0.00	0.00
Avail Cap(c_a), veh/h	220	1025	1053	174	966	1013	907	0	0	936	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	24.8	10.4	10.5	25.4	9.0	9.0	21.0	0.0	0.0	20.1	0.0	0.0
Incr Delay (d2), s/veh	2.2	6.6	7.1	2.4	1.1	1.1	0.5	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	6.7	7.1	0.4	3.1	3.2	1.0	0.0	0.0	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.0	17.1	17.7	27.8	10.1	10.1	21.5	0.0	0.0	20.3	0.0	0.0
LnGrp LOS	C	B	B	C	B	B	C	A	A	C	A	A
Approach Vol, veh/h		1720			1208			90			28	
Approach Delay, s/veh		17.7			10.5			21.5			20.3	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.3	35.1		12.0	7.3	34.1		12.0				
Change Period (Y+Rc), s	4.6	* 6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	5.2	* 31		29.0	6.6	29.0		29.0				
Max Q Clear Time (g_c+I1), s	2.9	23.4		2.7	3.5	14.2		4.9				
Green Ext Time (p_c), s	0.0	5.5		0.1	0.0	6.0		0.4				

Intersection Summary		
HCM 6th Ctrl Delay		15.0
HCM 6th LOS		B

Notes

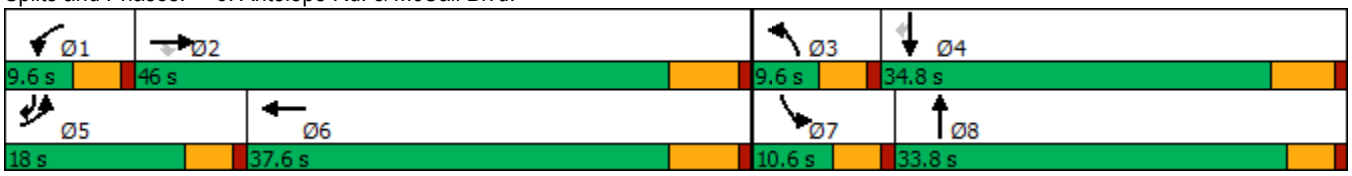
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

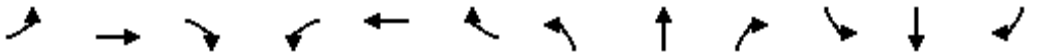
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	209	1243	55	28	975	39	18	28	12	144
Future Volume (vph)	209	1243	55	28	975	39	18	28	12	144
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA	pm+ov
Protected Phases	5	2		1	6	3	8	7	4	5
Permitted Phases			2							4
Detector Phase	5	2	2	1	6	3	8	7	4	5
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	35.2	35.2	9.6	35.2	9.6	33.6	9.6	34.8	9.6
Total Split (s)	18.0	46.0	46.0	9.6	37.6	9.6	33.8	10.6	34.8	18.0
Total Split (%)	18.0%	46.0%	46.0%	9.6%	37.6%	9.6%	33.8%	10.6%	34.8%	18.0%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6	5.8	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 71
Natural Cycle: 100
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Antelope Rd. & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	209	1243	55	28	975	46	39	18	29	28	12	144
Future Volume (veh/h)	209	1243	55	28	975	46	39	18	29	28	12	144
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	230	1366	57	31	1071	51	43	20	18	31	13	110
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	273	1760	785	58	1292	61	72	124	112	58	242	449
Arrive On Green	0.15	0.50	0.50	0.03	0.37	0.37	0.04	0.14	0.14	0.03	0.13	0.13
Sat Flow, veh/h	1781	3554	1585	1781	3453	164	1781	901	811	1781	1870	1585
Grp Volume(v), veh/h	230	1366	57	31	551	571	43	0	38	31	13	110
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1841	1781	0	1711	1781	1870	1585
Q Serve(g_s), s	8.8	22.1	1.3	1.2	19.7	19.7	1.7	0.0	1.4	1.2	0.4	3.7
Cycle Q Clear(g_c), s	8.8	22.1	1.3	1.2	19.7	19.7	1.7	0.0	1.4	1.2	0.4	3.7
Prop In Lane	1.00		1.00	1.00		0.09	1.00		0.47	1.00		1.00
Lane Grp Cap(c), veh/h	273	1760	785	58	665	688	72	0	236	58	242	449
V/C Ratio(X)	0.84	0.78	0.07	0.54	0.83	0.83	0.60	0.00	0.16	0.54	0.05	0.25
Avail Cap(c_a), veh/h	340	2018	900	127	796	824	127	0	713	152	774	899
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.8	14.5	9.3	33.4	19.9	19.9	33.1	0.0	26.7	33.4	26.7	19.4
Incr Delay (d2), s/veh	12.0	1.7	0.0	2.9	6.3	6.1	2.9	0.0	0.3	2.9	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	7.1	0.4	0.5	7.9	8.1	0.8	0.0	0.6	0.5	0.2	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.9	16.2	9.3	36.3	26.2	26.0	36.0	0.0	27.0	36.3	26.8	19.6
LnGrp LOS	D	B	A	D	C	C	D	A	C	D	C	B
Approach Vol, veh/h		1653			1153			81			154	
Approach Delay, s/veh		19.4			26.4			31.8			23.6	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.9	40.9	7.4	14.9	15.4	32.4	6.9	15.5
Change Period (Y+Rc), s	4.6	6.2	4.6	5.8	4.6	6.2	4.6	* 5.8
Max Green Setting (Gmax), s	5.0	39.8	5.0	29.0	13.4	31.4	6.0	* 29
Max Q Clear Time (g_c+I1), s	3.2	24.1	3.7	5.7	10.8	21.7	3.2	3.4
Green Ext Time (p_c), s	0.0	8.2	0.0	0.3	0.1	4.5	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	22.6
HCM 6th LOS	C

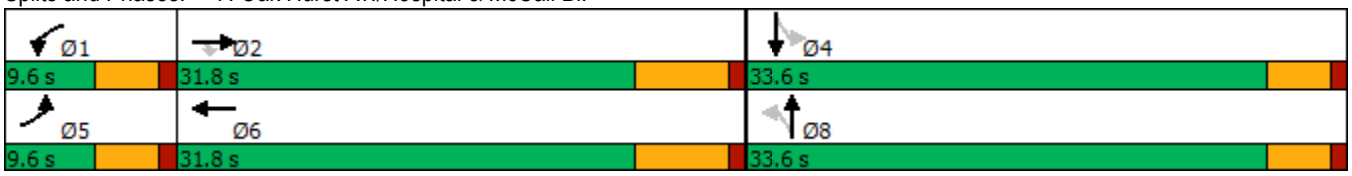
Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	2	1245	42	18	978	44	0	10	0
Future Volume (vph)	2	1245	42	18	978	44	0	10	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2		1	6		8		4
Permitted Phases			2			8		4	
Detector Phase	5	2	2	1	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	23.2	23.2	9.6	23.2	33.6	33.6	14.6	14.6
Total Split (s)	9.6	31.8	31.8	9.6	31.8	33.6	33.6	33.6	33.6
Total Split (%)	12.8%	42.4%	42.4%	12.8%	42.4%	44.8%	44.8%	44.8%	44.8%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2		4.6		4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 46.3
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

Splits and Phases: 7: Oak Hurst Av./Hospital & McCall Bl.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	1245	42	18	978	3	44	0	11	10	0	6
Future Volume (veh/h)	2	1245	42	18	978	3	44	0	11	10	0	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	1383	44	20	1087	3	49	0	3	11	0	5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	5	1800	803	44	1921	5	306	5	9	234	24	52
Arrive On Green	0.00	0.51	0.51	0.02	0.53	0.53	0.11	0.00	0.11	0.11	0.00	0.11
Sat Flow, veh/h	1781	3554	1585	1781	3635	10	1319	46	84	847	224	487
Grp Volume(v), veh/h	2	1383	44	20	531	559	52	0	0	16	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1869	1449	0	0	1557	0	0
Q Serve(g_s), s	0.0	13.4	0.6	0.5	8.6	8.6	1.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	13.4	0.6	0.5	8.6	8.6	1.3	0.0	0.0	0.3	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	0.94		0.06	0.69		0.31
Lane Grp Cap(c), veh/h	5	1800	803	44	939	987	320	0	0	310	0	0
V/C Ratio(X)	0.41	0.77	0.05	0.45	0.57	0.57	0.16	0.00	0.00	0.05	0.00	0.00
Avail Cap(c_a), veh/h	209	2133	951	209	1066	1121	1133	0	0	1147	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	21.2	8.5	5.3	20.5	6.8	6.8	17.5	0.0	0.0	17.1	0.0	0.0
Incr Delay (d2), s/veh	19.1	1.5	0.0	2.7	0.5	0.5	0.2	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.7	0.1	0.2	1.5	1.6	0.4	0.0	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.3	10.0	5.4	23.2	7.3	7.3	17.8	0.0	0.0	17.2	0.0	0.0
LnGrp LOS	D	A	A	C	A	A	B	A	A	B	A	A
Approach Vol, veh/h		1429			1110			52			16	
Approach Delay, s/veh		9.9			7.6			17.8			17.2	
Approach LOS		A			A			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.7	27.8		9.2	4.7	28.7		9.2				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	5.0	25.6		29.0	5.0	25.6		29.0				
Max Q Clear Time (g_c+I1), s	2.5	15.4		2.3	2.0	10.6		3.3				
Green Ext Time (p_c), s	0.0	6.2		0.0	0.0	5.5		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		9.1	
HCM 6th LOS		A	

Intersection	
Int Delay, s/veh	2.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	28	11	30	47	7	35
Future Vol, veh/h	28	11	30	47	7	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	37	15	40	63	9	47

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	137	72	0	0	103	0
Stage 1	72	-	-	-	-	-
Stage 2	65	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	856	990	-	-	1489	-
Stage 1	951	-	-	-	-	-
Stage 2	958	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	851	990	-	-	1489	-
Mov Cap-2 Maneuver	851	-	-	-	-	-
Stage 1	951	-	-	-	-	-
Stage 2	952	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.3	0	1.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	886	1489	-
HCM Lane V/C Ratio	-	-	0.059	0.006	-
HCM Control Delay (s)	-	-	9.3	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

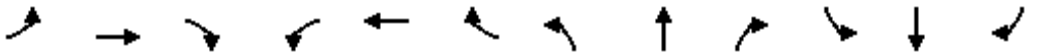
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	73	1175	3	927	8	3	0	5	0
Future Volume (vph)	73	1175	3	927	8	3	0	5	0
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2	1	6			8		4
Permitted Phases					6	8		4	
Detector Phase	5	2	1	6	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	23.2	9.6	23.2	23.2	22.6	22.6	33.6	33.6
Total Split (s)	10.4	46.8	9.6	46.0	46.0	33.6	33.6	33.6	33.6
Total Split (%)	11.6%	52.0%	10.7%	51.1%	51.1%	37.3%	37.3%	37.3%	37.3%
Yellow Time (s)	3.6	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	6.2		4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 61.3
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 9: Junipero Rd. & McCall Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	73	1175	3	3	927	8	3	0	0	5	0	65
Future Volume (veh/h)	73	1175	3	3	927	8	3	0	0	5	0	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	78	1250	3	3	986	8	3	0	0	5	0	45
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	106	1217	3	7	2121	946	210	0	0	262	0	152
Arrive On Green	0.06	0.65	0.65	0.00	0.60	0.60	0.10	0.00	0.00	0.10	0.00	0.10
Sat Flow, veh/h	1781	1865	4	1781	3554	1585	984	0	0	1418	0	1582
Grp Volume(v), veh/h	78	0	1253	3	986	8	3	0	0	5	0	45
Grp Sat Flow(s),veh/h/ln	1781	0	1870	1781	1777	1585	984	0	0	1418	0	1582
Q Serve(g_s), s	2.7	0.0	40.6	0.1	9.6	0.1	0.1	0.0	0.0	0.0	0.0	1.6
Cycle Q Clear(g_c), s	2.7	0.0	40.6	0.1	9.6	0.1	1.8	0.0	0.0	0.2	0.0	1.6
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	106	0	1219	7	2121	946	210	0	0	262	0	152
V/C Ratio(X)	0.74	0.00	1.03	0.41	0.46	0.01	0.01	0.00	0.00	0.02	0.00	0.30
Avail Cap(c_a), veh/h	166	0	1219	143	2272	1014	712	0	0	786	0	737
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.8	0.0	10.8	30.9	7.0	5.1	27.0	0.0	0.0	25.5	0.0	26.2
Incr Delay (d2), s/veh	3.7	0.0	33.0	13.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	19.0	0.1	2.2	0.0	0.0	0.0	0.0	0.1	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.5	0.0	43.9	44.4	7.2	5.1	27.0	0.0	0.0	25.5	0.0	27.2
LnGrp LOS	C	A	F	D	A	A	C	A	A	C	A	C
Approach Vol, veh/h		1331			997			3			50	
Approach Delay, s/veh		43.2			7.3			27.0			27.1	
Approach LOS		D			A			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.9	46.8		10.6	8.3	43.4		10.6				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	5.0	40.6		29.0	5.8	39.8		29.0				
Max Q Clear Time (g_c+I1), s	2.1	42.6		3.6	4.7	11.6		3.8				
Green Ext Time (p_c), s	0.0	0.0		0.2	0.0	7.0		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		27.8	
HCM 6th LOS		C	

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	8	46	19	16	6	18	0	11	5	0	3
Future Vol, veh/h	1	8	46	19	16	6	18	0	11	5	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	53	53	53	53	53	53	53	53	53	53	53	53
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	15	87	36	30	11	34	0	21	9	0	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	41	0	0	102	0	0	174	176	59	181	214	36
Stage 1	-	-	-	-	-	-	63	63	-	108	108	-
Stage 2	-	-	-	-	-	-	111	113	-	73	106	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1568	-	-	1490	-	-	789	717	1007	781	684	1037
Stage 1	-	-	-	-	-	-	948	842	-	897	806	-
Stage 2	-	-	-	-	-	-	894	802	-	937	807	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1568	-	-	1490	-	-	769	698	1007	750	666	1037
Mov Cap-2 Maneuver	-	-	-	-	-	-	769	698	-	750	666	-
Stage 1	-	-	-	-	-	-	947	841	-	896	786	-
Stage 2	-	-	-	-	-	-	867	782	-	917	806	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	3.5	9.6	9.4
HCM LOS			A	A

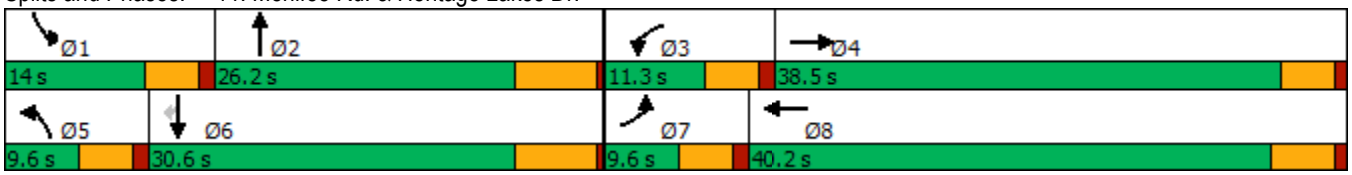
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	845	1568	-	-	1490	-	-	837
HCM Lane V/C Ratio	0.065	0.001	-	-	0.024	-	-	0.018
HCM Control Delay (s)	9.6	7.3	0	-	7.5	0	-	9.4
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0.1

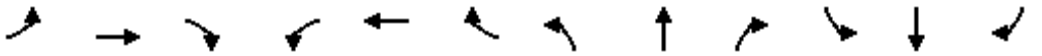
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	15	6	49	8	24	654	100	721	21
Future Volume (vph)	15	6	49	8	24	654	100	721	21
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2	1	6	
Permitted Phases									6
Detector Phase	7	4	3	8	5	2	1	6	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	14.6	9.6	40.2	9.6	26.0	9.6	26.0	26.0
Total Split (s)	9.6	38.5	11.3	40.2	9.6	26.2	14.0	30.6	30.6
Total Split (%)	10.7%	42.8%	12.6%	44.7%	10.7%	29.1%	15.6%	34.0%	34.0%
Yellow Time (s)	3.6	3.6	3.6	4.2	3.6	5.5	3.6	5.5	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	0.5	1.0	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	5.2	4.6	6.0	4.6	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 43.5
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 11: Menifee Rd. & Heritage Lakes Dr.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	6	3	49	8	42	24	654	62	100	721	21
Future Volume (veh/h)	15	6	3	49	8	42	24	654	62	100	721	21
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	16	6	3	51	8	15	25	681	61	104	751	21
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	36	28	14	98	34	64	55	1344	119	158	1209	539
Arrive On Green	0.02	0.02	0.02	0.06	0.06	0.06	0.03	0.28	0.28	0.09	0.34	0.34
Sat Flow, veh/h	1781	1176	588	1781	582	1092	1781	4764	423	1781	3554	1585
Grp Volume(v), veh/h	16	0	9	51	0	23	25	485	257	104	751	21
Grp Sat Flow(s),veh/h/ln	1781	0	1764	1781	0	1674	1781	1702	1783	1781	1777	1585
Q Serve(g_s), s	0.3	0.0	0.2	1.0	0.0	0.5	0.5	4.4	4.5	2.1	6.6	0.3
Cycle Q Clear(g_c), s	0.3	0.0	0.2	1.0	0.0	0.5	0.5	4.4	4.5	2.1	6.6	0.3
Prop In Lane	1.00		0.33	1.00		0.65	1.00		0.24	1.00		1.00
Lane Grp Cap(c), veh/h	36	0	42	98	0	98	55	960	503	158	1209	539
V/C Ratio(X)	0.44	0.00	0.21	0.52	0.00	0.23	0.46	0.51	0.51	0.66	0.62	0.04
Avail Cap(c_a), veh/h	240	0	1613	322	0	1580	240	1855	972	452	2358	1052
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.9	0.0	17.8	17.0	0.0	16.7	17.7	11.1	11.2	16.4	10.2	8.2
Incr Delay (d2), s/veh	3.1	0.0	2.5	1.6	0.0	1.2	2.2	0.4	0.8	1.7	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.1	0.4	0.0	0.2	0.2	1.0	1.1	0.7	1.4	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.0	0.0	20.2	18.6	0.0	17.9	19.9	11.6	12.0	18.1	10.8	8.2
LnGrp LOS	C	A	C	B	A	B	B	B	B	B	B	A
Approach Vol, veh/h		25			74			767			876	
Approach Delay, s/veh		20.7			18.4			12.0			11.6	
Approach LOS		C			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	16.5	6.6	6.1	5.7	18.6	5.4	7.4
Change Period (Y+Rc), s	4.6	6.0	4.6	* 5.2	4.6	6.0	4.6	5.2
Max Green Setting (Gmax), s	9.4	20.2	6.7	* 34	5.0	24.6	5.0	35.0
Max Q Clear Time (g_c+I1), s	4.1	6.5	3.0	2.2	2.5	8.6	2.3	2.5
Green Ext Time (p_c), s	0.0	3.5	0.0	0.0	0.0	4.1	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	12.2
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	16	0	739	773	12
Future Vol, veh/h	0	16	0	739	773	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	17	0	803	840	13

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	427	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-	-
Pot Cap-1 Maneuver	0	492	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	492	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.6	0	0
HCM LOS	B		

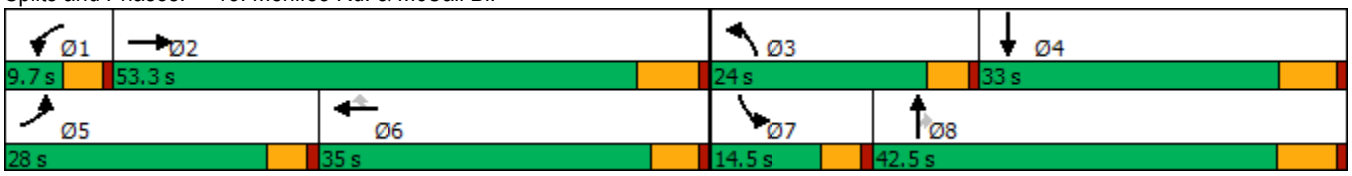
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	492	-	-
HCM Lane V/C Ratio	-	0.035	-	-
HCM Control Delay (s)	-	12.6	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-

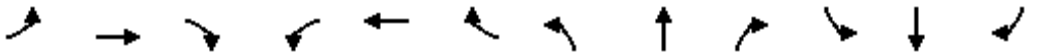
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	269	497	53	351	91	329	379	62	132	424
Future Volume (vph)	269	497	53	351	91	329	379	62	132	424
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	5	2	1	6		3	8		7	4
Permitted Phases					6			8		
Detector Phase	5	2	1	6	6	3	8	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	33.5	9.6	33.5	33.5	9.6	42.5	42.5	9.6	16.5
Total Split (s)	28.0	53.3	9.7	35.0	35.0	24.0	42.5	42.5	14.5	33.0
Total Split (%)	23.3%	44.4%	8.1%	29.2%	29.2%	20.0%	35.4%	35.4%	12.1%	27.5%
Yellow Time (s)	3.6	5.5	3.6	4.4	4.4	3.6	5.5	5.5	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.5	4.6	5.4	5.4	4.6	6.5	6.5	4.6	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 104.1
Natural Cycle: 110
Control Type: Actuated-Uncoordinated

Splits and Phases: 13: Menifee Rd. & McCall Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	269	497	424	53	351	91	329	379	62	132	424	233
Future Volume (veh/h)	269	497	424	53	351	91	329	379	62	132	424	233
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			Yes			Yes	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1859	1859	1859
Adj Flow Rate, veh/h	289	534	415	57	377	74	354	408	33	142	456	150
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	322	636	495	138	688	307	346	1088	479	172	546	178
Arrive On Green	0.18	0.33	0.33	0.04	0.19	0.19	0.19	0.31	0.31	0.10	0.21	0.21
Sat Flow, veh/h	1781	1902	1478	3456	3554	1585	1781	3554	1565	1771	2617	854
Grp Volume(v), veh/h	289	499	450	57	377	74	354	408	33	142	307	299
Grp Sat Flow(s),veh/h/ln	1781	1777	1603	1728	1777	1585	1781	1777	1565	1771	1766	1705
Q Serve(g_s), s	15.8	25.9	25.9	1.6	9.5	3.9	19.4	9.0	1.5	7.9	16.6	16.8
Cycle Q Clear(g_c), s	15.8	25.9	25.9	1.6	9.5	3.9	19.4	9.0	1.5	7.9	16.6	16.8
Prop In Lane	1.00		0.92	1.00		1.00	1.00		1.00	1.00		0.50
Lane Grp Cap(c), veh/h	322	595	536	138	688	307	346	1088	479	172	368	356
V/C Ratio(X)	0.90	0.84	0.84	0.41	0.55	0.24	1.02	0.37	0.07	0.83	0.83	0.84
Avail Cap(c_a), veh/h	418	834	752	177	1054	470	346	1282	565	176	474	458
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.0	30.7	30.7	46.8	36.3	34.0	40.2	27.1	24.5	44.2	37.8	37.9
Incr Delay (d2), s/veh	15.8	5.4	6.0	0.7	0.7	0.4	54.1	0.2	0.1	24.8	9.6	10.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	11.1	10.1	0.7	4.1	1.5	13.1	3.5	0.5	4.4	7.6	7.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.8	36.1	36.7	47.5	37.0	34.4	94.3	27.3	24.6	69.0	47.4	48.6
LnGrp LOS	E	D	D	D	D	C	F	C	C	E	D	D
Approach Vol, veh/h		1238			508			795			748	
Approach Delay, s/veh		40.9			37.8			57.0			52.0	
Approach LOS		D			D			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.6	39.9	24.0	27.3	22.6	25.8	14.3	37.0
Change Period (Y+Rc), s	4.6	6.5	4.6	* 6.5	4.6	* 6.5	4.6	6.5
Max Green Setting (Gmax), s	5.1	46.8	19.4	* 27	23.4	* 30	9.9	36.0
Max Q Clear Time (g_c+I1), s	3.6	27.9	21.4	18.8	17.8	11.5	9.9	11.0
Green Ext Time (p_c), s	0.0	5.5	0.0	2.0	0.2	2.3	0.0	2.4

Intersection Summary	
HCM 6th Ctrl Delay	46.8
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

APPENDIX 6.3: OPENING YEAR CUMULATIVE (2025) WITHOUT PROJECT CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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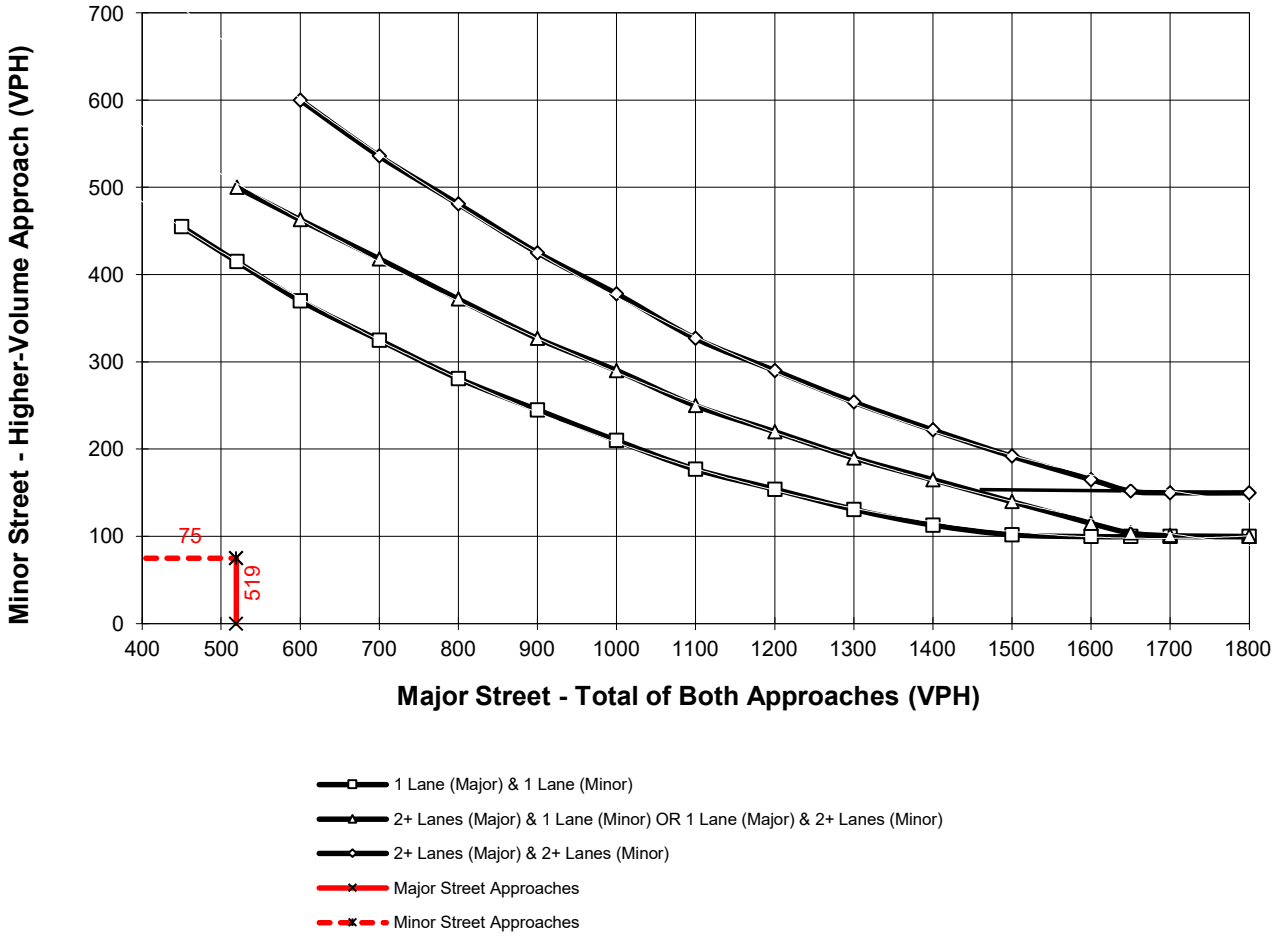
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **Opening Year Cumulative (2025) NP Conditions - Weekday AM Peak Hour**

Major Street Name = **Junipero Rd.**
Total of Both Approaches (VPH) = **519**
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Heritage Lakes Dr.**
High Volume Approach (VPH) = **75**
Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

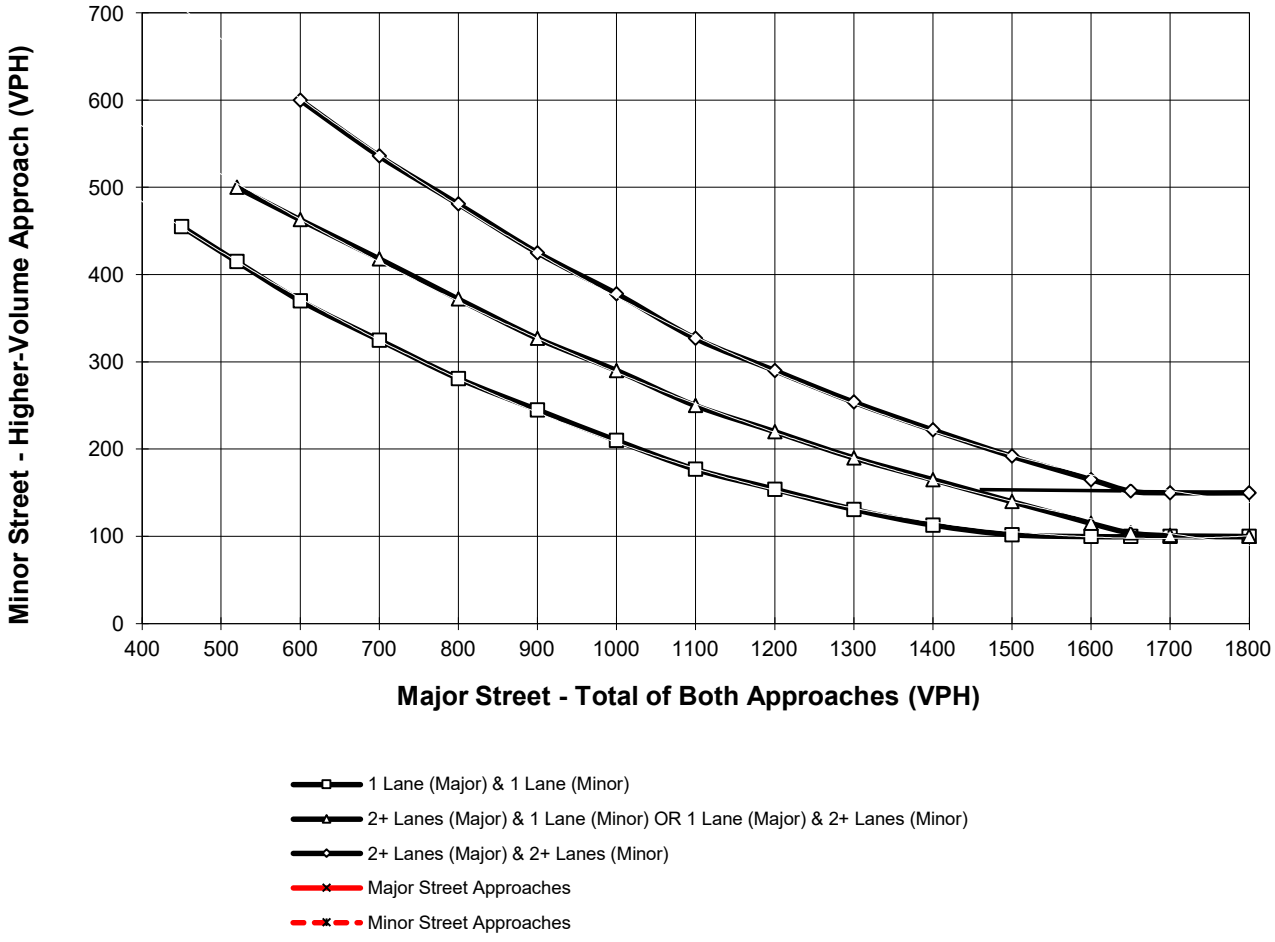
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **Opening Year Cumulative (2025) NP Conditions - Weekday AM Peak Hour**

Major Street Name = **Heritage Lakes Dr.** Total of Both Approaches (VPH) = **130**
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Settlement St./Driveway 1** High Volume Approach (VPH) = **21**
Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

APPENDIX 6.4: OPENING YEAR CUMULATIVE (2025) WITH PROJECT CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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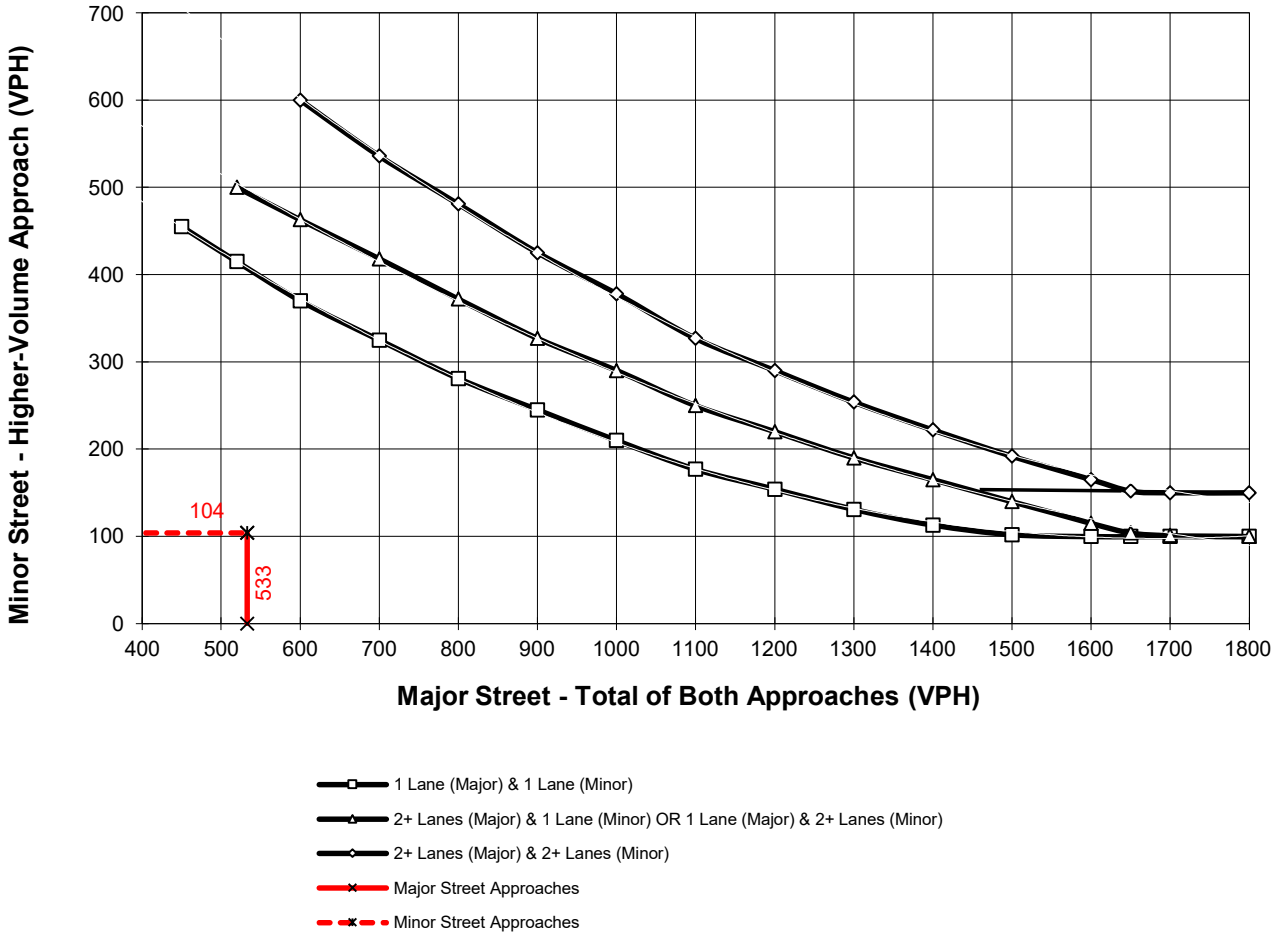
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **Opening Year Cumulative (2025) WP Conditions - Weekday AM Peak Hour**

Major Street Name = **Junipero Rd.**
Total of Both Approaches (VPH) = **533**
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Heritage Lakes Dr.**
High Volume Approach (VPH) = **104**
Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

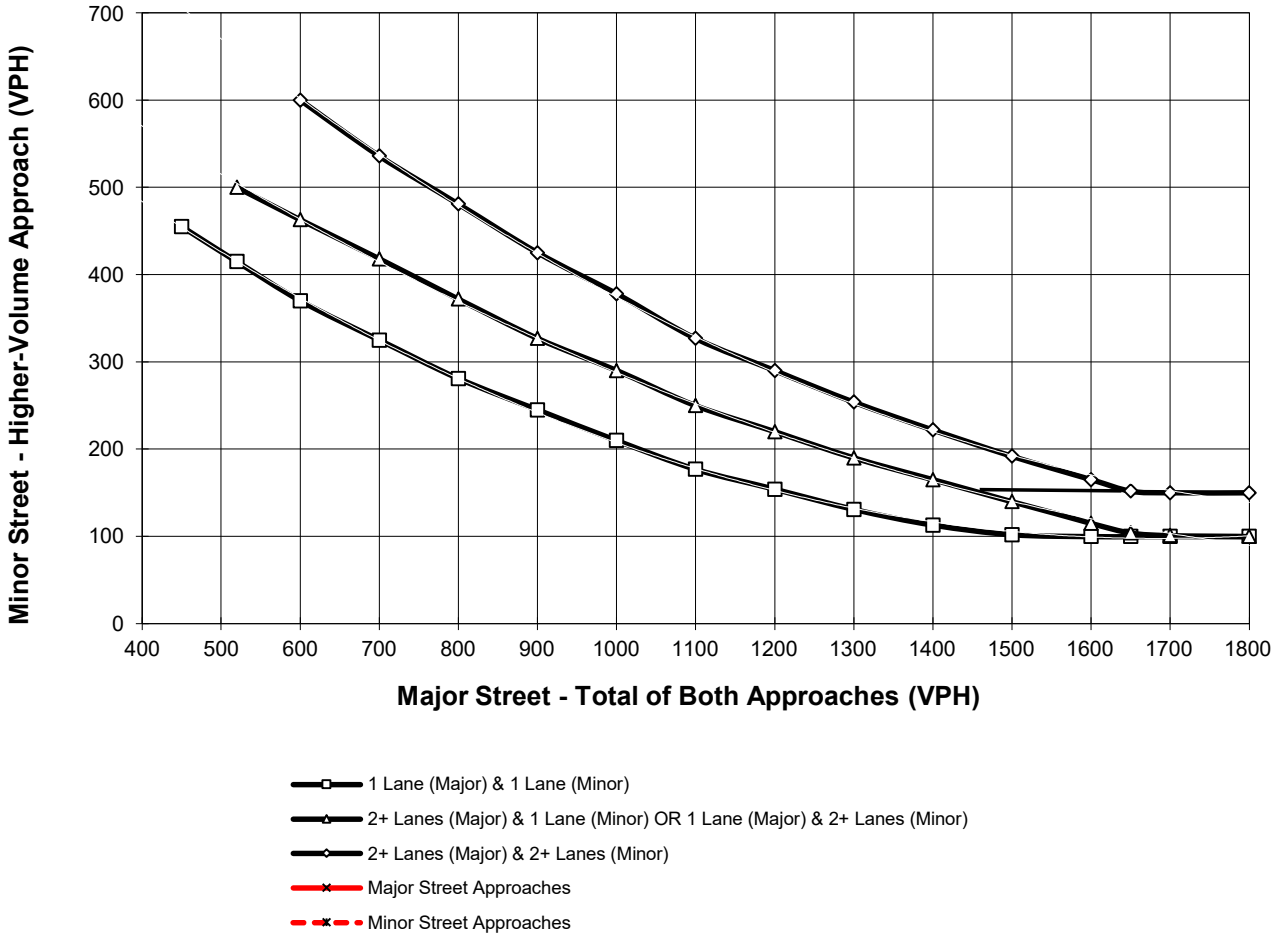
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **Opening Year Cumulative (2025) WP Conditions - Weekday AM Peak Hour**

Major Street Name = **Heritage Lakes Dr.** Total of Both Approaches (VPH) = **150**
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Settlement St./Driveway 1** High Volume Approach (VPH) = **47**
Number of Approach Lanes On Minor Street = **1**

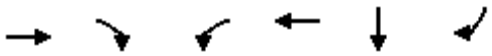
SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

APPENDIX 6.5: OPENING YEAR CUMULATIVE (2025) WITHOUT PROJECT CONDITIONS FREEWAY OFF- PEAK HOUR QUEUING ANALYSIS WORKSHEETS

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Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	916	451	664	1103	287	277
v/c Ratio	0.90	0.59	0.97	0.44	0.87	0.66
Control Delay	47.7	6.8	38.0	14.8	65.8	26.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.7	6.8	38.0	14.8	65.8	26.0
Queue Length 50th (ft)	297	6	410	346	179	77
Queue Length 95th (ft)	#421	87	m#517	m381	#325	168
Internal Link Dist (ft)	508			655	1385	
Turn Bay Length (ft)			230			455
Base Capacity (vph)	1015	766	699	2506	330	420
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.59	0.95	0.44	0.87	0.66

Intersection Summary

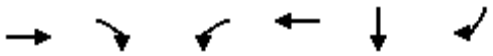
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBT	WBR	NBT	NBR
Lane Group Flow (vph)	285	914	1520	527	234	317
v/c Ratio	0.83	0.37	0.93	0.54	0.65	0.68
Control Delay	63.9	0.2	37.1	5.7	45.8	21.8
Queue Delay	0.0	0.0	14.5	0.1	0.0	0.0
Total Delay	63.9	0.2	51.6	5.8	45.8	21.8
Queue Length 50th (ft)	158	0	471	26	138	65
Queue Length 95th (ft)	m161	m0	#680	110	220	165
Internal Link Dist (ft)		655	468		1818	
Turn Bay Length (ft)	260					240
Base Capacity (vph)	415	2447	1641	967	362	468
Starvation Cap Reductn	0	0	151	30	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.37	1.02	0.56	0.65	0.68

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	1267	415	444	1227	526	565
v/c Ratio	1.10	0.55	1.10	0.59	0.91	1.00
Control Delay	92.1	7.7	87.9	16.4	55.2	69.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	92.1	7.7	87.9	16.4	55.2	69.6
Queue Length 50th (ft)	~485	22	~324	368	320	~326
Queue Length 95th (ft)	#618	102	m#364	m355	#519	#558
Internal Link Dist (ft)	508			655	1385	
Turn Bay Length (ft)			230			455
Base Capacity (vph)	1150	748	402	2090	575	564
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.10	0.55	1.10	0.59	0.91	1.00

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBT	WBR	NBT	NBR
Lane Group Flow (vph)	344	1408	1187	320	453	679
v/c Ratio	0.90	0.70	1.05	0.47	0.74	1.17
Control Delay	34.1	6.1	76.9	7.3	37.2	122.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.1	6.1	76.9	7.3	37.2	122.0
Queue Length 50th (ft)	149	70	~459	15	251	~495
Queue Length 95th (ft)	m139	m110	#591	83	370	#717
Internal Link Dist (ft)		655	468		1818	
Turn Bay Length (ft)	260					240
Base Capacity (vph)	415	1999	1127	687	616	582
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.70	1.05	0.47	0.74	1.17

Intersection Summary

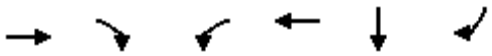
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

APPENDIX 6.6: OPENING YEAR CUMULATIVE (2025) WITH PROJECT CONDITIONS FREEWAY OFF- PEAK HOUR QUEUING ANALYSIS WORKSHEETS

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Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	918	451	679	1107	293	277
v/c Ratio	0.92	0.60	0.98	0.44	0.89	0.66
Control Delay	49.9	7.1	39.7	14.8	68.5	26.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.9	7.1	39.7	14.8	68.5	26.2
Queue Length 50th (ft)	298	8	426	348	183	78
Queue Length 95th (ft)	#421	90	m#528	m378	#335	169
Internal Link Dist (ft)	508			655	1385	
Turn Bay Length (ft)			230			455
Base Capacity (vph)	999	757	699	2506	330	420
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.60	0.97	0.44	0.89	0.66

Intersection Summary

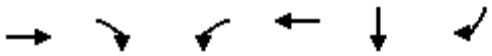
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBT	WBR	NBT	NBR
Lane Group Flow (vph)	285	921	1539	546	234	322
v/c Ratio	0.83	0.38	0.94	0.56	0.65	0.69
Control Delay	64.0	0.2	38.6	6.0	45.8	22.9
Queue Delay	0.0	0.0	17.6	0.1	0.0	0.0
Total Delay	64.0	0.2	56.1	6.1	45.8	22.9
Queue Length 50th (ft)	159	0	481	29	138	71
Queue Length 95th (ft)	m158	m0	#692	117	220	172
Internal Link Dist (ft)		655	468		1818	
Turn Bay Length (ft)	260					240
Base Capacity (vph)	415	2447	1641	973	362	465
Starvation Cap Reductn	0	0	149	30	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.38	1.03	0.58	0.65	0.69

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	1271	415	453	1229	545	565
v/c Ratio	1.11	0.56	1.13	0.59	0.95	1.00
Control Delay	93.3	7.7	95.9	16.4	60.9	69.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	93.3	7.7	95.9	16.4	60.9	69.6
Queue Length 50th (ft)	~488	23	~337	370	336	~326
Queue Length 95th (ft)	#622	103	m#372	m354	#547	#558
Internal Link Dist (ft)	508			655	1385	
Turn Bay Length (ft)			230			455
Base Capacity (vph)	1150	747	402	2090	575	564
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.11	0.56	1.13	0.59	0.95	1.00

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBT	WBR	NBT	NBR
Lane Group Flow (vph)	344	1432	1198	331	453	695
v/c Ratio	0.90	0.72	1.06	0.48	0.74	1.19
Control Delay	34.4	6.5	80.0	7.5	37.2	132.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.4	6.5	80.0	7.5	37.2	132.7
Queue Length 50th (ft)	150	116	~467	17	251	~517
Queue Length 95th (ft)	m138	m117	#599	87	370	#742
Internal Link Dist (ft)		655	468		1818	
Turn Bay Length (ft)	260					240
Base Capacity (vph)	415	1999	1127	692	616	582
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.72	1.06	0.48	0.74	1.19

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

APPENDIX 6.7: OPENING YEAR CUMULATIVE (2025) WITH PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS WITH IMPROVEMENTS

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Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	890	437	659	1074	1	269
Future Volume (vph)	890	437	659	1074	1	269
Turn Type	NA	Perm	Prot	NA	NA	Perm
Protected Phases	2		1	6	4	
Permitted Phases		2				4
Detector Phase	2	2	1	6	4	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.0	22.0	9.0	20.0	20.0	20.0
Total Split (s)	41.0	41.0	29.0	70.0	30.0	30.0
Total Split (%)	41.0%	41.0%	29.0%	70.0%	30.0%	30.0%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	3.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	None	None	None	C-Max	Max	Max

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 61 (61%), Referenced to phase 6:WBT, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 1: I-215 SB Ramps & McCall Blvd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	890	437	659	1074	0	0	0	0	283	1	269
Future Volume (veh/h)	0	890	437	659	1074	0	0	0	0	283	1	269
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1841	1885	1870	1856	0				1796	1900	1856
Adj Flow Rate, veh/h	0	918	0	679	1107	0				292	1	120
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	4	1	2	3	0				7	0	3
Cap, veh/h	0	1400		759	2309	0				460	2	401
Arrive On Green	0.00	0.40	0.00	0.15	0.44	0.00				0.25	0.25	0.25
Sat Flow, veh/h	0	3589	1598	3456	3618	0				1804	6	1572
Grp Volume(v), veh/h	0	918	0	679	1107	0				293	0	120
Grp Sat Flow(s),veh/h/ln	0	1749	1598	1728	1763	0				1810	0	1572
Q Serve(g_s), s	0.0	21.3	0.0	19.3	22.3	0.0				14.4	0.0	6.2
Cycle Q Clear(g_c), s	0.0	21.3	0.0	19.3	22.3	0.0				14.4	0.0	6.2
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1400		759	2309	0				462	0	401
V/C Ratio(X)	0.00	0.66		0.89	0.48	0.00				0.63	0.00	0.30
Avail Cap(c_a), veh/h	0	1400		881	2309	0				462	0	401
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.23	0.23	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	24.4	0.0	41.5	15.9	0.0				33.1	0.0	30.0
Incr Delay (d2), s/veh	0.0	0.9	0.0	2.5	0.2	0.0				6.5	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	8.3	0.0	8.6	9.3	0.0				6.8	0.0	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	25.3	0.0	44.0	16.1	0.0				39.6	0.0	31.9
LnGrp LOS	A	C		D	B	A				D	A	C
Approach Vol, veh/h		918			1786						413	
Approach Delay, s/veh		25.3			26.7						37.4	
Approach LOS		C			C						D	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	25.5	44.5		30.0		70.0
Change Period (Y+Rc), s	3.5	4.5		4.5		4.5
Max Green Setting (Gmax), s	25.5	36.5		25.5		65.5
Max Q Clear Time (g_c+I1), s	21.3	23.3		16.4		24.3
Green Ext Time (p_c), s	0.7	3.3		0.8		5.4

Intersection Summary	
HCM 6th Ctrl Delay	27.7
HCM 6th LOS	C

Notes

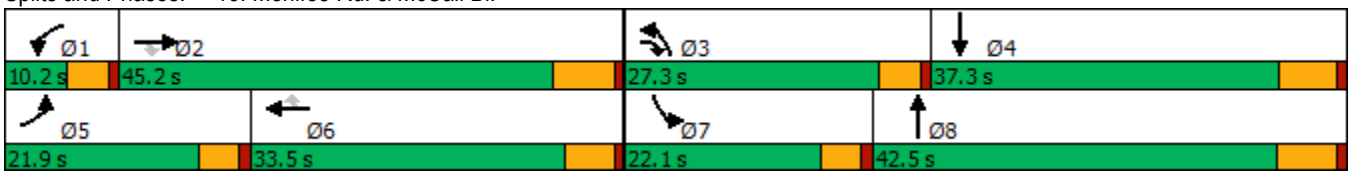
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

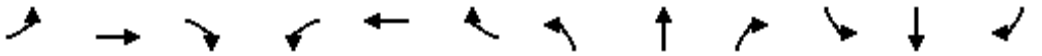
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	195	422	423	53	546	249	489	426	197	447
Future Volume (vph)	195	422	423	53	546	249	489	426	197	447
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	5	2	3	1	6		3	8	7	4
Permitted Phases			2			6				
Detector Phase	5	2	3	1	6	6	3	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	33.5	9.6	9.6	33.5	33.5	9.6	42.5	9.6	16.5
Total Split (s)	21.9	45.2	27.3	10.2	33.5	33.5	27.3	42.5	22.1	37.3
Total Split (%)	18.3%	37.7%	22.8%	8.5%	27.9%	27.9%	22.8%	35.4%	18.4%	31.1%
Yellow Time (s)	3.6	5.5	3.6	3.6	4.4	4.4	3.6	5.5	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.5	4.6	4.6	5.4	5.4	4.6	6.5	4.6	6.2
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 116.1
Natural Cycle: 110
Control Type: Actuated-Uncoordinated

Splits and Phases: 13: Menifee Rd. & McCall Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	195	422	423	53	546	249	489	426	38	197	447	218
Future Volume (veh/h)	195	422	423	53	546	249	489	426	38	197	447	218
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			Yes			Yes	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1859	1859	1859
Adj Flow Rate, veh/h	241	521	445	65	674	177	604	526	30	243	552	189
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	268	1182	830	133	783	349	660	959	55	270	624	213
Arrive On Green	0.15	0.33	0.33	0.04	0.22	0.22	0.19	0.28	0.28	0.15	0.24	0.24
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	3456	3415	194	1771	2575	878
Grp Volume(v), veh/h	241	521	445	65	674	177	604	273	283	243	378	363
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1728	1777	1832	1771	1766	1687
Q Serve(g_s), s	15.1	13.0	21.1	2.1	20.7	11.1	19.4	14.8	14.9	15.3	23.4	23.6
Cycle Q Clear(g_c), s	15.1	13.0	21.1	2.1	20.7	11.1	19.4	14.8	14.9	15.3	23.4	23.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.11	1.00		0.52
Lane Grp Cap(c), veh/h	268	1182	830	133	783	349	660	499	515	270	428	409
V/C Ratio(X)	0.90	0.44	0.54	0.49	0.86	0.51	0.92	0.55	0.55	0.90	0.88	0.89
Avail Cap(c_a), veh/h	272	1213	843	171	880	393	692	564	582	273	484	463
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.3	29.6	17.9	53.4	42.5	38.8	45.0	34.7	34.7	47.2	41.4	41.5
Incr Delay (d2), s/veh	28.9	0.3	0.6	1.0	8.0	1.1	16.0	0.9	0.9	29.1	15.9	17.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.6	5.3	7.0	0.9	9.7	4.2	9.3	6.1	6.4	8.6	11.4	11.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	76.2	29.9	18.6	54.5	50.5	39.9	61.0	35.6	35.6	76.3	57.3	58.6
LnGrp LOS	E	C	B	D	D	D	E	D	D	E	E	E
Approach Vol, veh/h		1207			916			1160			984	
Approach Delay, s/veh		34.9			48.8			48.8			62.5	
Approach LOS		C			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.0	44.2	26.3	34.0	21.7	31.5	21.9	38.4
Change Period (Y+Rc), s	4.6	6.5	4.6	* 6.5	4.6	* 6.5	4.6	6.5
Max Green Setting (Gmax), s	5.6	38.7	22.7	* 31	17.3	* 28	17.5	36.0
Max Q Clear Time (g_c+I1), s	4.1	23.1	21.4	25.6	17.1	22.7	17.3	16.9
Green Ext Time (p_c), s	0.0	4.2	0.2	1.9	0.0	2.3	0.0	2.6

Intersection Summary	
HCM 6th Ctrl Delay	48.0
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

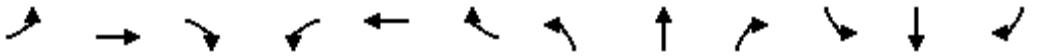
Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1246	407	444	1204	0	554
Future Volume (vph)	1246	407	444	1204	0	554
Turn Type	NA	Perm	Prot	NA	NA	Perm
Protected Phases	2		1	6	4	
Permitted Phases		2				4
Detector Phase	2	2	1	6	4	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.0	22.0	9.0	20.0	20.0	20.0
Total Split (s)	44.0	44.0	17.0	61.0	39.0	39.0
Total Split (%)	44.0%	44.0%	17.0%	61.0%	39.0%	39.0%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	3.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	None	None	None	C-Max	Max	Max

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 61 (61%), Referenced to phase 6:WBT, Start of Yellow
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 1: I-215 SB Ramps & McCall Blvd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1246	407	444	1204	0	0	0	0	534	0	554
Future Volume (veh/h)	0	1246	407	444	1204	0	0	0	0	534	0	554
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1885	1885	0				1870	1900	1885
Adj Flow Rate, veh/h	0	1271	0	453	1229	0				545	0	397
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98
Percent Heavy Veh, %	0	2	2	1	1	0				2	0	1
Cap, veh/h	0	1404		470	2024	0				624	0	551
Arrive On Green	0.00	0.40	0.00	0.14	0.56	0.00				0.34	0.00	0.34
Sat Flow, veh/h	0	3647	1585	3483	3676	0				1810	0	1598
Grp Volume(v), veh/h	0	1271	0	453	1229	0				545	0	397
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1742	1791	0				1810	0	1598
Q Serve(g_s), s	0.0	33.7	0.0	12.9	22.7	0.0				28.2	0.0	21.7
Cycle Q Clear(g_c), s	0.0	33.7	0.0	12.9	22.7	0.0				28.2	0.0	21.7
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1404		470	2024	0				624	0	551
V/C Ratio(X)	0.00	0.91		0.96	0.61	0.00				0.87	0.00	0.72
Avail Cap(c_a), veh/h	0	1404		470	2024	0				624	0	551
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.09	0.09	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	28.5	0.0	43.0	14.4	0.0				30.7	0.0	28.5
Incr Delay (d2), s/veh	0.0	8.5	0.0	6.2	0.1	0.0				15.6	0.0	7.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	14.7	0.0	5.7	8.0	0.0				14.1	0.0	8.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	37.0	0.0	49.2	14.5	0.0				46.3	0.0	36.5
LnGrp LOS	A	D		D	B	A				D	A	D
Approach Vol, veh/h		1271			1682						942	
Approach Delay, s/veh		37.0			23.9						42.1	
Approach LOS		D			C						D	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	17.0	44.0		39.0		61.0
Change Period (Y+Rc), s	3.5	4.5		4.5		4.5
Max Green Setting (Gmax), s	13.5	39.5		34.5		56.5
Max Q Clear Time (g_c+I1), s	14.9	35.7		30.2		24.7
Green Ext Time (p_c), s	0.0	2.1		1.3		6.1

Intersection Summary		
HCM 6th Ctrl Delay		32.5
HCM 6th LOS		C

Notes

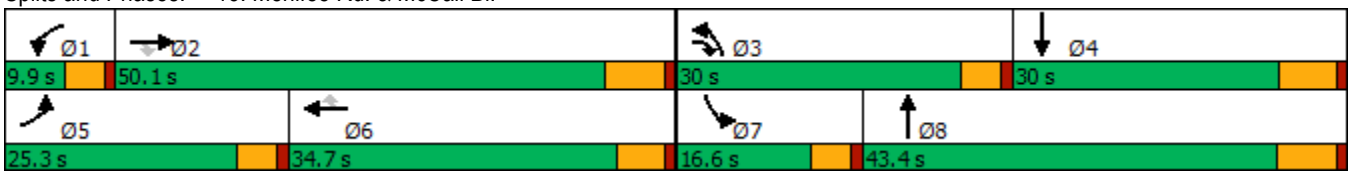
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

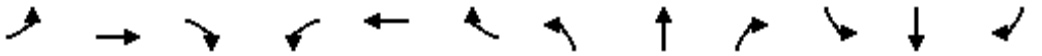
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	269	497	424	53	351	91	329	379	132	424
Future Volume (vph)	269	497	424	53	351	91	329	379	132	424
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	5	2	3	1	6		3	8	7	4
Permitted Phases			2			6				
Detector Phase	5	2	3	1	6	6	3	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	33.5	9.6	9.6	33.5	33.5	9.6	42.5	9.6	16.5
Total Split (s)	25.3	50.1	30.0	9.9	34.7	34.7	30.0	43.4	16.6	30.0
Total Split (%)	21.1%	41.8%	25.0%	8.3%	28.9%	28.9%	25.0%	36.2%	13.8%	25.0%
Yellow Time (s)	3.6	5.5	3.6	3.6	4.4	4.4	3.6	5.5	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.5	4.6	4.6	5.4	5.4	4.6	6.5	4.6	6.2
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 96.3
Natural Cycle: 110
Control Type: Actuated-Uncoordinated

Splits and Phases: 13: Menifee Rd. & McCall Bl.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	269	497	424	53	351	91	329	379	62	132	424	233
Future Volume (veh/h)	269	497	424	53	351	91	329	379	62	132	424	233
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			Yes			Yes	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1859	1859	1859
Adj Flow Rate, veh/h	289	534	415	57	377	74	354	408	33	142	456	150
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	333	1065	685	161	565	252	460	848	68	178	582	190
Arrive On Green	0.19	0.30	0.30	0.05	0.16	0.16	0.13	0.25	0.25	0.10	0.22	0.22
Sat Flow, veh/h	1781	3554	1583	3456	3554	1585	3456	3327	268	1771	2617	854
Grp Volume(v), veh/h	289	534	415	57	377	74	354	217	224	142	307	299
Grp Sat Flow(s),veh/h/ln	1781	1777	1583	1728	1777	1585	1728	1777	1818	1771	1766	1705
Q Serve(g_s), s	11.7	9.2	15.0	1.2	7.4	3.1	7.4	7.7	7.8	5.8	12.1	12.3
Cycle Q Clear(g_c), s	11.7	9.2	15.0	1.2	7.4	3.1	7.4	7.7	7.8	5.8	12.1	12.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.15	1.00		0.50
Lane Grp Cap(c), veh/h	333	1065	685	161	565	252	460	453	463	178	393	379
V/C Ratio(X)	0.87	0.50	0.61	0.35	0.67	0.29	0.77	0.48	0.48	0.80	0.78	0.79
Avail Cap(c_a), veh/h	496	2084	1139	246	1400	625	1180	882	902	286	565	546
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.3	21.5	16.2	34.4	29.4	27.6	31.1	23.5	23.5	32.7	27.2	27.3
Incr Delay (d2), s/veh	7.3	0.4	0.9	0.5	1.4	0.6	1.0	0.8	0.8	3.1	4.4	5.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	3.4	4.5	0.5	3.1	1.1	2.8	2.9	3.0	2.4	5.0	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.7	21.8	17.1	34.9	30.8	28.2	32.2	24.3	24.3	35.8	31.6	32.2
LnGrp LOS	D	C	B	C	C	C	C	C	C	D	C	C
Approach Vol, veh/h		1238			508			795			748	
Approach Delay, s/veh		23.7			30.9			27.8			32.7	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.1	28.8	14.5	23.0	18.5	18.3	12.1	25.5
Change Period (Y+Rc), s	4.6	6.5	4.6	* 6.5	4.6	* 6.5	4.6	6.5
Max Green Setting (Gmax), s	5.3	43.6	25.4	* 24	20.7	* 29	12.0	36.9
Max Q Clear Time (g_c+I1), s	3.2	17.0	9.4	14.3	13.7	9.4	7.8	9.8
Green Ext Time (p_c), s	0.0	4.9	0.5	2.2	0.2	2.4	0.1	2.2

Intersection Summary	
HCM 6th Ctrl Delay	27.8
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

MENIFEE

CITY OF MENIFEE

MEMORANDUM

PUBLIC WORKS / ENGINEERING DEPARTMENT

DATE: December 21, 2022

TO: Russell Brown, AICP, Senior Planner

FROM: Chet Robinson, PE, GE, Senior Engineer

CC: Steve Strapac, PE, PLS, Principal Engineer
Daniel Padilla, PE, PLS, City Engineer

SUBJECT: DEV2022-006 Villages at Junipero, TIA and

The comments noted herein are for review of the following:

- Traffic Analysis, the Village at Junipero (PLN22-0030), prepared by Urban Crossroads, dated December 1, 2022.
- Village at Junipero Vehicle Miles Traveled (VMT) Screening Evaluation, prepared by Urban Crossroads, dated September 23, 2022.

Public Works / Engineering has reviewed the referenced documents and has the following comments:

Engineering Comments:

1. Traffic Impact Analysis: See attached comment memo from the City's Traffic Engineer.
2. Additional Comments from Engineering: The traffic study shall analyze queuing at all gated entrances to ensure sufficient storage capacity on site for vehicles waiting for gates to open. Revision to the site plan may be needed to avoid queuing of vehicles onto public roadways. **The queuing analysis in Section 1.6.2 does not address queuing at the gated entrances**.
3. VMT Analysis: See attached comment memo from the City's Traffic Engineer.

Any questions can be directed to Chet Robinson at (951) 723-3879, or by email at crobinson@cityofmenifee.us

CITY OF MENIFEE

MEMORANDUM

PUBLIC WORKS/ENGINEERING DEPARTMENT

DATE: **December 20, 2022**

TO: **Chet Robinson, Senior Engineer**

FROM: **Stephen Manganiello, Contract Traffic Engineer**

CC: **Rob Blough, City Traffic Engineer**

SUBJECT: **DEV2022-006 Villages at Junipero – TIA Review 1**

Traffic Engineering has completed the review of DEV2022-006 Villages at Junipero Traffic Impact Analysis, dated December 1, 2022 and have the following comments.

Intersection Analysis

1. Please confirm whether existing signal timing plans were obtained and used to conduct the existing conditions analysis. Provide copies of signal timing sheets if used.
2. Intersection #6 Antelope Rd & McCall Blvd: In the 2025 with project PM scenario, EBL has a volume of 209 yet only assigns a 10 second phase split, which results in a poor LOS F for that movement. Please update analysis to provide sufficient green time for that movement; consider increasing cycle length.

Site Access and Gate Stacking

3. Minimum inside turning radius for curbs should be 26 feet to accommodate fire apparatus (per California Fire Code). Update site access discussion and associated exhibits accordingly.
4. Design vehicle graphics and turning templates on Exhibit 1-6 are difficult to read. Please update for higher resolution.

Site Adjacent and Site Access Recommendations

5. Heritage Lake Drive between Junipero Road and Menifee Road should be designed to include a 10-foot wide stiped median with transitions for left turn pockets at all intersections, one 11-foot travel lane in each direction, and one 6-foot bike lane in each direction, and parking prohibited. Update discussion, analysis and recommendations accordingly.

Off Site Recommendations / Project Contributions

6. Update Tables 1-5 and 7-1 to show project fair share contributions and/or fee contributions (DIF, TUMF) for widening of McCall Blvd between I-215 and Junipero Rd to its ultimate roadway classification as a 6-lane divided urban arterial.
7. Addition of a second westbound left turn lane at the McCall Blvd and I-215 southbound ramp intersection would need to be constructed as part of roadway/bridge widening and include widening/reconfiguration of the southbound on-ramp to accommodate two receiving lanes. Update discussion in Section 6.6.1 accordingly.
8. Addition of an eastbound right turn lane along McCall Blvd at Menifee Rd will require undergrounding or relocation of existing overhead utilities. Update discussion in Section 6.6.1 accordingly.
9. Modify opening year improvements at Menifee Rd and McCall Blvd to restripe the northbound approach to include two left turn lanes, one through lane, and one shared through/right turn lane (as volumes don't warrant an exclusive right turn lane). This configuration will allow for appropriate transitions through the intersection and provide a cost-effective, interim solution until Menifee Road is widened to its ultimate roadway classification as a 6-lane divided urban arterial. Update discussion, analysis and recommendations accordingly.
10. Update opening year PM peak hour with improvements analysis and reporting for intersection of McCall Blvd and Menifee Rd to show eastbound right turn overlap; currently overlap is only shown for the AM peak hour with improvements analysis.

If you have any questions on these comments please contact Stephen Manganiello, Contract Traffic Engineer, at stephen.manganiello@stctraffic.com

CITY OF MENIFEE

MEMORANDUM

PUBLIC WORKS/ENGINEERING DEPARTMENT

DATE: **December 20, 2022**

TO: **Chet Robinson, Senior Engineer**

FROM: **Stephen Manganiello, Contract Traffic Engineer**

CC: **Rob Blough, City Traffic Engineer**

SUBJECT: **DEV2022-006 Villages at Junipero – VMT Review 1**

Traffic Engineering has completed the review of DEV2022-006 Villages at Junipero VMT Analysis, dated November 9, 2022, and supports the findings that the project screens out from needing to perform a project-level VMT assessment.

If you have any questions on these comments please contact Stephen Manganiello, Contract Traffic Engineer, at stephen.manganiello@stctraffic.com

MEMORANDUM

URBAN | CROSSROADS

DATE: February 22, 2023
TO: Chet Robinson, City of Menifee
FROM: Charlene So, Urban Crossroads
JOB NO: 14854-05 RTC Memo



VILLAGES AT JUNIPERO (DEV2022-006) TRAFFIC ANALYSIS RESPONSE TO COMMENTS

Urban Crossroads, Inc. is pleased to submit the following responses to the Traffic Analysis comments for the proposed Villages at Junipero development (**Project**), which is located on the southwest corner of Menifee Road and Heritage Lake Drive in the City of Menifee. A copy of the City's comments dated February 14, 2023, are provided in Attachment A.

SITE ACCESS & GATE STACKING

COMMENT #1

Please check the available stacking distances column shown on Table 1-4. These do not correspond to the proposed site plan. For example, the eastbound right movement on Table 1-4 at Driveway 1 and Heritage Lake Drive, shows an available stacking distance of 365 feet. Exhibit 1-6 of the TIA shows that 3 cars, or approximately 60-feet, can stack back from the gate before backing up onto Heritage Lake Drive. The same was noted for the southbound right movement on Menifee Road (Second Request).

RESPONSE #1

Distances shown on Table 1-4 have been updated. The northbound direction has been updated to reflect the distance between the gate and Heritage Lake Drive (per Exhibit 1-6). Similarly, the southbound direction has been updated to reflect the distance between Heritage Lake Drive and the first driveway to the north; the eastbound direction has been updated to reflect the distance between Driveway 1/Settlement Street and Lasso Way; and the westbound direction has been updated to reflect the distance between Driveway 1/Settlement Street and Menifee Boulevard. The queues shown on Table 1-4 are the queuing analysis results for the intersections of the driveways on Heritage Lake Drive and Menifee Boulevard. The gate stacking queues (at the gates for each driveway) are discussed in Section 1.9 of the Traffic Study.

INTERSECTION ANALYSIS

COMMENT #2

Please check eastbound and westbound through volumes at Intersection #4 Sherman Road and McCall Boulevard in the Opening Year Cumulative (2025) With Project AM peak hour scenario (Second Request).

RESPONSE #2

The AM eastbound through volume at the intersection of Sherman and McCall shows 740 vehicles for Opening Year Cumulative (2025) With Project traffic conditions. Similarly, the AM westbound through volume at the intersection of Sherman and McCall shows 1,371 vehicles for Opening Year Cumulative (2025) With Project traffic conditions. Both the eastbound and westbound through volumes used for the operations analysis matches the volumes shown on Exhibit 6-2. The Opening Year Cumulative (2025) With Project eastbound and westbound through volumes have been verified by adding the volumes shown for Existing conditions (Exhibit 3-7) plus ambient growth (6.12%), plus Project traffic (Exhibit 4-2), and Cumulative traffic (Exhibit 4-4). However, the eastbound and westbound through volumes for Existing traffic conditions does not match the actual volume counts as they have been adjusted to account for volume balancing with the adjacent intersection of Via Entrada/Hillpointe on McCall.

If you have any questions or comments, I can be reached at cso@urbanxroads.com.

ATTACHMENT A: CITY COMMENTS DATED FEBRUARY 14, 2023

CITY OF MENIFEE

MEMORANDUM

PUBLIC WORKS/ENGINEERING DEPARTMENT

DATE: **February 14, 2023**

TO: **Chet Robinson, Senior Engineer**

FROM: **Stephen Manganiello, Contract Traffic Engineer**

CC: **Rob Blough, City Traffic Engineer**

SUBJECT: **DEV2022-006 Villages at Junipero – TIA Review 3**

Traffic Engineering has completed the review of DEV2022-006 Villages at Junipero Traffic Impact Analysis, dated January 27, 2022, and have the following comments.

Site Access and Gate Stacking

1. Please check the available stacking distances column shown on Table 1-4. These do not correspond to the proposed site plan. For example, the eastbound right movement on Table 1-4 at Driveway 1 and Heritage Lake Drive, shows an available stacking distance of 365 feet. Exhibit 1-6 of the TIA shows that 3 cars, or approximately 60-feet, can stack back from the gate before backing up onto Heritage Lake Drive. The same was noted for the southbound right movement on Menifee Road *(Second Request)*.

Intersection Analysis

2. Please check eastbound and westbound through volumes at intersection #4 Sherman Road and McCall Blvd. in the Opening Year Cumulative (2025) With Project AM peak hour scenario *(Second Request)*.

If you have any questions on these comments please contact Stephen Manganiello, Contract Traffic Engineer, at stephen.manganiello@stctraffic.com

MEMORANDUM

URBAN | CROSSROADS



DATE: January 5, 2023
TO: Chet Robinson, City of Menifee
FROM: Charlene So, Urban Crossroads
JOB NO: 14854-05 RTC Memo

VILLAGES AT JUNIPERO (DEV2022-006) TRAFFIC ANALYSIS RESPONSE TO COMMENTS

Urban Crossroads, Inc. is pleased to submit the following responses to the Traffic Analysis comments for the proposed Villages at Junipero development (**Project**), which is located on the southwest corner of Menifee Road and Heritage Lake Drive in the City of Menifee. A copy of the City's comments dated December 20, 2022, are provided in Attachment A.

INTERSECTION ANALYSIS

COMMENT #1

Please confirm whether existing signal timing plans were obtained and used to conduct the existing conditions analysis. Provide copies of signal timing sheets if used.

RESPONSE #1

Signal timing for City controlled intersections were requested as part of the scoping process but were not received. As such, signal timing for City controlled intersections are based on the minimum cycle length to accommodate minimum green times and pedestrian crossings. Caltrans signal timing is used for the I-215 Ramps at McCall Boulevard (see Attachment B).

COMMENT #2

Intersection #6 Antelope Rd & McCall Blvd: In the 2025 with project PM scenario, EBL has a volume of 209 yet only assigns a 10 second phase split, which results in a poor LOS F for that movement. Please update analysis to provide sufficient green time for that movement; consider increasing cycle length.

RESPONSE #2

The cycle length was increased to 100-seconds in order to allocate additional green time to the eastbound left turn movement. The eastbound left turn movement has increased the split to 18-seconds and is anticipated to operate at LOS C for 2025 With Project conditions (in the PM peak hour).

SITE ACCESS AND GATE STACKING

COMMENT #3

Minimum inside turning radius for curbs should be 26 feet to accommodate fire apparatus (per California Fire Code). Update site access discussion and associated exhibits accordingly.

RESPONSE #3

As shown on the revised Exhibit 1-5, the curb radius has been revised to reflect 30-feet, which is greater than the minimum 26-feet required by the City.

COMMENT #4

Design vehicle graphics and turning templates on Exhibit 1-6 are difficult to read. Please update for higher resolution.

RESPONSE #4

Exhibit 1-6 has been split into two exhibits – Exhibit 1-6 (Gate Stacking) and Exhibit 1-7 (Vehicle Turnaround). The resolution has been increased and tracking darkened in order to improve the readability of the exhibits.

SITE ADJACENT AND SITE ACCESS RECOMMENDATIONS

COMMENT #5

Heritage Lake Drive between Junipero Road and Menifee Road should be designed to include a 10-foot wide stiped median with transitions for left turn pockets at all intersections, one 11-foot travel lane in each direction, and one 6-foot bike lane in each direction, and parking prohibited. Update discussion, analysis and recommendations accordingly.

RESPONSE #5

Exhibit 1-5 has been updated to reflect a 10-foot striped median with transitions to accommodate left-turn pockets along with 11-foot travel lanes in each direction plus a 6-foot bike lane.

OFF SITE RECOMMENDATIONS / PROJECT CONTRIBUTIONS

COMMENT #6

Update Tables 1-5 and 7-1 to show project fair share contributions and/or fee contributions (DIF, TUMF) for widening of McCall Blvd between I-215 and Junipero Rd to its ultimate roadway classification as a 6-lane divided urban arterial.

RESPONSE #6

Updated Table 1-5 to include the Project's DIF/TUMF payment of fees for the proposed Project. Allocation of those funds are at the discretion of WRCOG and the City as to which improvements the fees are applied to. The TUMF program identifies the I-215/McCall Boulevard interchange as a TUMF facility ($18,243,000 max TUMF share) and the widening of McCall Boulevard from 2 lanes

to 4 lanes along a 0.95-mile segment between Aspel and Menifee ($2,859,000 max TUMF share). However, for informational purposes, both Table 1-5 and Table 7-1 have been updated to include the fair share percentage applicable to the I-215 Southbound Ramps at McCall Boulevard.

COMMENT #7

Addition of a second westbound left turn lane at the McCall Blvd and I-215 southbound ramp intersection would need to be constructed as part of roadway/bridge widening and include widening/reconfiguration of the southbound on-ramp to accommodate two receiving lanes. Update discussion in Section 6.6.1 accordingly.

RESPONSE #7

Text has been added to Section 6.8.1 accordingly.

COMMENT #8

Addition of an eastbound right turn lane along McCall Blvd at Menifee Rd will require undergrounding or relocation of existing overhead utilities. Update discussion in Section 6.6.1 accordingly.

RESPONSE #8

Text has been added to Section 6.8.1 accordingly.

COMMENT #9

Modify opening year improvements at Menifee Rd and McCall Blvd to restripe the northbound approach to include two left turn lanes, one through lane, and one shared through/right turn lane (as volumes don't warrant an exclusive right turn lane). This configuration will allow for appropriate transitions through the intersection and provide a cost-effective, interim solution until Menifee Road is widened to its ultimate roadway classification as a 6-lane divided urban arterial. Update discussion, analysis and recommendations accordingly.

RESPONSE #9

Analysis results and discussion have been updated to reflect the proposed restriping of the northbound approach.

COMMENT #10

Update opening year PM peak hour with improvements analysis and reporting for intersection of McCall Blvd and Menifee Rd to show eastbound right turn overlap; currently overlap is only shown for the AM peak hour with improvements analysis.

RESPONSE #10

Analysis result has been updated to reflect the proposed eastbound right-turn overlap for the AM peak hour analysis.

ENGINEERING COMMENTS

COMMENT #2

The traffic study shall analyze queuing at all gated entrances to ensure sufficient storage capacity on site for vehicles waiting for gates to open. Revision to the site plan may be needed to avoid queuing of vehicles onto public roadways. The queuing analysis in Section 1.6.2 does not address queuing at the gated entrances.

RESPONSE #2

Refer to Section 1.9 for site access and gate stacking assessment. As discussed in Section 1.9 and presented in Appendix 1.2, there is sufficient stacking behind each gate (at Driveway 1 and Driveway 2) to accommodate the anticipated queues with the gate closed.

If you have any questions or comments, I can be reached at cso@urbanxroads.com.

ATTACHMENT A: CITY COMMENTS DATED DECEMBER 20, 2022

MENIFEE

CITY OF MENIFEE

MEMORANDUM

PUBLIC WORKS / ENGINEERING DEPARTMENT

DATE: December 21, 2022

TO: Russell Brown, AICP, Senior Planner

FROM: Chet Robinson, PE, GE, Senior Engineer

CC: Steve Strapac, PE, PLS, Principal Engineer
Daniel Padilla, PE, PLS, City Engineer

SUBJECT: DEV2022-006 Villages at Junipero, TIA and

The comments noted herein are for review of the following:

- Traffic Analysis, the Village at Junipero (PLN22-0030), prepared by Urban Crossroads, dated December 1, 2022.
- Village at Junipero Vehicle Miles Traveled (VMT) Screening Evaluation, prepared by Urban Crossroads, dated September 23, 2022.

Public Works / Engineering has reviewed the referenced documents and has the following comments:

Engineering Comments:

1. Traffic Impact Analysis: See attached comment memo from the City's Traffic Engineer.
2. Additional Comments from Engineering: The traffic study shall analyze queuing at all gated entrances to ensure sufficient storage capacity on site for vehicles waiting for gates to open. Revision to the site plan may be needed to avoid queuing of vehicles onto public roadways. **The queuing analysis in Section 1.6.2 does not address queuing at the gated entrances**.
3. VMT Analysis: See attached comment memo from the City's Traffic Engineer.

Any questions can be directed to Chet Robinson at (951) 723-3879, or by email at crobinson@cityofmenifee.us

CITY OF MENIFEE

MEMORANDUM

PUBLIC WORKS/ENGINEERING DEPARTMENT

DATE: **December 20, 2022**

TO: **Chet Robinson, Senior Engineer**

FROM: **Stephen Manganiello, Contract Traffic Engineer**

CC: **Rob Blough, City Traffic Engineer**

SUBJECT: **DEV2022-006 Villages at Junipero – TIA Review 1**

Traffic Engineering has completed the review of DEV2022-006 Villages at Junipero Traffic Impact Analysis, dated December 1, 2022 and have the following comments.

Intersection Analysis

1. Please confirm whether existing signal timing plans were obtained and used to conduct the existing conditions analysis. Provide copies of signal timing sheets if used.
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If you have any questions on these comments please contact Stephen Manganiello, Contract Traffic Engineer, at stephen.manganiello@stctraffic.com

CITY OF MENIFEE

MEMORANDUM

PUBLIC WORKS/ENGINEERING DEPARTMENT

DATE: **December 20, 2022**

TO: **Chet Robinson, Senior Engineer**

FROM: **Stephen Manganiello, Contract Traffic Engineer**

CC: **Rob Blough, City Traffic Engineer**

SUBJECT: **DEV2022-006 Villages at Junipero – VMT Review 1**

Traffic Engineering has completed the review of DEV2022-006 Villages at Junipero VMT Analysis, dated November 9, 2022, and supports the findings that the project screens out from needing to perform a project-level VMT assessment.

If you have any questions on these comments please contact Stephen Manganiello, Contract Traffic Engineer, at stephen.manganiello@stctraffic.com

ATTACHMENT B: CALTRANS SIGNAL TIMING

Location: I-215 N/B @ McCALL BLVD
System: COORDINATED
Master At: THIS LOCATION
District: 08
I/C:
Designed By:
Installed By: SAFWAN SAYED
Service Info:

Timing Change:	Date Start:	Date End:	Designed:	Installed:
3/14/2011	6/14/1995			3/14/2011

		FLASH
PHASE	1)	[ ]
	2) E/B McCALL BLVD	[ ]
	3)	[ ]
	4)	[ ]
	5) E/B McCALL BLVD - LEFT TURN	[ ]
	6) W/B McCALL BLVD	[ ]
	7)	[ ]
	8) I-215 N/B OFF RAMP	[ ]
OVERLAP	A)	[ ]
	B)	[ ]
	C)	[ ]
	D)	[ ]
	E)	[ ]
	F)	[ ]

Intersection Layout

Comments and Notes:

RAM Checksum

Page 2: FD76	Page 7: D2FD
Page 3: 1C0C	Page 8: 6E4B
Page 4: 7DF0	Page 9: 0ED8
Page 5: 296F	Page 10: 1611
Page 6: A55D	Page 11: C381

Post Mile: RIV-215-020.532-McCALL BLVD-NB

Printed: 9/16/2011

CONFIGURATION PHASE FLAGS

Phases (2-1-1-1) *	
Permitted	. 2 . . 5 6 . 8
Restricted	. . . . .

Phase Recalls (2-1-1-2)	
Vehicle Min	. 2 . . . 6 . .
Vehicle Max	. . . . .
Pedestrian	. . . . .
Bicycle	. . . . .

Phase Locks (2-1-1-3) *	
Red	. . . . .
Yellow	. . . . .
Force/Max	. . . . .

Phase Features (2-1-1-4)	
Double Entry	. . . . .
Rest In Walk	. . . . .
Rest In Red	. . . . .
Walk 2	. . . . .
Max Green 2	. . . . .
Max Green 3	. . . . .

Startup (2-1-1-5) *	
First Green Phases	. 2 . . . 6 . .
Yellow Start Phases	 8
Yellow Start Overlaps	. . . . .
Startup All-Red	5.0
Vehicle Calls	1 2 3 4 5 6 7 8
Pedestrian Calls	. 2 . 4 . 6 . 8

Call To Phase (2-1-2-1)		Omit On Green	
1	. . . . .	1	. . . . .
2	. . . . .	2	. . . . .
3	. . . . .	3	. . . . .
4	. . . . .	4	. . . . .
5	. . . . .	5	. . . . .
6	. . . . .	6	. . . . .
7	. . . . .	7	. . . . .
8	. . . . .	8	. . . . .

Flashing Colors (2-1-2-2)	
Yellow Flash Phases	. . . . .
Yellow Flash Overlap	. . . . .
Flash In Red Phases	. . . . .
Flash In Red Overlap	. . . . .

Special Operation (2-1-2-3)	
Single Exit Phase	. . . . .
Driveway Signal Phases	. . . . .
Driveway Signal Overlaps	. . . . .
Leading Ped Phases	. . . . .

Protected Permissive (2-1-2-4)	
Protected Permissive	. . . . .

Pedestrian (2-1-3) *	
P1	. . . . .
P2	. 2 . . . . .
P3	. . . . .
P4	. . . . .
P5	. . . . .
P6	. . . . .
P7	. . . . .
P8	. . . . .

Overlap (2-1-4)

Overlap	Parent	Omit	No Start	Not
A	. . . . .	. . . . .	. . . . .	. . . . .
B	. . . . .	. . . . .	. . . . .	. . . . .
C	. . . . .	. . . . .	. . . . .	. . . . .
D	. . . . .	. . . . .	. . . . .	. . . . .
E	. . . . .	. . . . .	. . . . .	. . . . .
F	. . . . .	. . . . .	. . . . .	. . . . .

PHASE TIMING

Phase (2-2)	-1- *	-2- *	-3- *	-4- *	-5- *	-6- *	-7- *	-8- *
--- Walk 1 ---	0	7	0	0	0	0	0	0
Flash Don't Walk	0	5	0	0	0	0	0	0
Minimum Green	0	5	0	0	5	5	0	5
Det Limit	0	0	0	0	0	0	0	0
Max Initial	0	0	0	0	0	0	0	0
Max Green 1	0	40	0	0	30	35	0	30
Max Green 2	0	0	0	0	0	0	0	0
Max Green 3	0	0	0	0	0	0	0	0
Extension	0.0	2.0	0.0	0.0	2.0	2.0	0.0	3.0
Maximum Gap	0.0	2.0	0.0	0.0	2.0	2.0	0.0	3.0
Minimum Gap	0.0	2.0	0.0	0.0	2.0	2.0	0.0	3.0
Add Per Vehicle	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Reduce Gap By	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Reduce Every	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	3.0	4.0	3.0	3.0	3.0	4.0	3.0	4.0
All-Red	0.0	0.5	0.0	0.0	0.5	0.5	0.0	0.5
Ped/Bike (2-3)	**-1-**	**-2-**	**-3-**	**-4-**	**-5-**	**-6-**	**-7-**	**-8-**
--- Walk 2 ---	0	0	0	0	0	0	0	0
Delay/Early Walk	0	0	0	0	0	0	0	0
Solid Don't Walk	0	0	0	0	0	0	0	0
Bike Green	0	0	0	0	0	0	0	0
Bike All-Red	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

OVERLAP TIMING

Overlap (2-4)	A	B	C	D	E	F
Green	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	5.0	5.0	5.0	5.0	5.0	5.0
Red	0.0	0.0	0.0	0.0	0.0	0.0

Red Revert

Red Revert (2-5)	
Time	5.0
Red To Sec (2-6)	
Red To Sec	OFF

COORDINATION

Local Plan (7-1...9) TIMING DATA [Offsets]

Green Factors or Press [F] to Select Force-Off

	*	Cycle	Multi	Perm	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 1	Green Factor	100							55			30	21		35
Plan 2	Green Factor	100							55			26	25		35
Plan 3	Green Factor	100							55			25	26		35
Plan 4	Green Factor														
Plan 5	Green Factor														
Plan 6	Green Factor														
Plan 7	Green Factor														
Plan 8	Green Factor														
Plan 9	Green Factor														

Local Plan (7-1...9) PHASE FLAGS

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 1	.2.4.6.8	.2...6..	.....	.....	.....	.....	.....	.....
Plan 2	.2.4.6.8	.2...6..	.....	.....	.....	.....	.....	.....
Plan 3	.2.4.6.8	.2...6..	.....	.....	.....	.....	.....	.....
Plan 4	.....	.....	.....	.....	.....	.....	.....	.....
Plan 5	.....	.....	.....	.....	.....	.....	.....	.....
Plan 6	.....	.....	.....	.....	.....	.....	.....	.....
Plan 7	.....	.....	.....	.....	.....	.....	.....	.....
Plan 8	.....	.....	.....	.....	.....	.....	.....	.....
Plan 9	.....	.....	.....	.....	.....	.....	.....	.....

Master Timer Sync (7-A)
Enable in Plans
.....

Master Sub Master	
Input	
Output	

FREE PLAN PHASE FLAGS

(7-E) Free	
Lag	Omit
.2.4.6.8	.....
Veh Min	Veh Max
.2...6..	.....
Ped	Bike
.....	.....
Cond	Cond Grn
.....	10

MANUAL COMMANDS

Manual Plan (4-1)	
Plan	OffSet
	A

Plan: 1-9
15 or 254 = Flash
14 or 255 = Free
Offset A, B, or C

Special Function Override (4-2)			
#	Control	#	Control
1	NORMAL	3	NORMAL
2	NORMAL	4	NORMAL

Detector Reset	(4-3)
Local Manual (4-4)	OFF

DETECTORS

Detector Attributes (5-1) *				Slot	Detector Configuration (5-2)				
Det	Type	Phases	Lock		Det	Delay	Extend	Recall	Port
1	COUNT+CALL+EXTEND	.2.....	NO	I2U	1			10	1.1
2	COUNT+CALL+EXTEND	.....6..	NO	J2U	2			10	1.2
3	COUNT+CALL+EXTEND	...4....	NO	I6U	3			10	1.3
4	COUNT+CALL+EXTEND	8	NO	J6U	4			10	1.4
5	COUNT+CALL+EXTEND	.2.....	NO	I2L	5			10	1.5
6	COUNT+CALL+EXTEND	.....6..	NO	J2L	6			10	1.6
7	COUNT+CALL+EXTEND	...4....	NO	I6L	7			10	1.7
8	COUNT+CALL+EXTEND	8	NO	J6L	8			10	1.8
9	COUNT+CALL+EXTEND	.2.....	NO	I4	9			10	2.1
10	COUNT+CALL+EXTEND	.....6..	NO	J4	10			10	2.2
11	COUNT+CALL+EXTEND	...4....	NO	I8	11			10	2.3
12	COUNT+CALL+EXTEND	8	NO	J8	12			10	2.4
13	COUNT+CALL+EXTEND	....5...	NO	J1	13			10	3.1
14	COUNT+CALL+EXTEND	1.......	NO	I1	14			10	3.2
15	COUNT+CALL+EXTEND	......7.	NO	J5	15			10	3.3
16	COUNT+CALL+EXTEND	..3.....	NO	I5	16			10	3.4
17	COUNT+CALL+EXTEND	....5...	NO	J9U	17			10	3.5
18	COUNT+CALL+EXTEND	1.......	NO	I9U	18			10	3.6
19	COUNT+CALL+EXTEND	......7.	NO	J9L	19			10	3.7
20	COUNT+CALL+EXTEND	..3.....	NO	I9L	20			10	3.8
21	COUNT+CALL+EXTEND	.2.....	NO	I3L	21			10	6.2
22	COUNT+CALL+EXTEND	.....6..	NO	J3L	22			10	6.3
23	COUNT+CALL+EXTEND	...4....	NO	I7L	23			10	6.4
24	COUNT+CALL+EXTEND	8	NO	J7L	24			10	6.5
25	COUNT+CALL+EXTEND	.2.....	NO	I3U	25			10	4.5
26	COUNT+CALL+EXTEND	.....6..	NO	J3U	26			10	4.6
27	COUNT+CALL+EXTEND	...4....	NO	I7U	27			10	4.7
28	COUNT+CALL+EXTEND	8	NO	J7U	28			10	4.8
29	PEDESTRIAN	.2.....	NO	I 12U	29			10	5.1
30	PEDESTRIAN	.....6..	NO	I 13U	30			10	5.2
31	PEDESTRIAN	...4....	NO	I 12L	31			10	5.3
32	PEDESTRIAN	8	NO	I 13L	32			10	5.4

Failure Times(5-3)	Minutes
Maximum On Time	
Fail Reset Time	

Failure Override (5-4)	
Detectors 1-8	.....
Detectors 9-16	.....
Detectors 17-24	.....
Detectors 25-32	.....

System Detector Assignment (5-5)								
Sys Det	1	2	3	4	5	6	7	8
Det Num								
Sys Det	9	10	11	12	13	14	15	16
Det Num								

CIC Operation (5-6-1)	
Enable in Plans	.....

CIC Values (5-6-2)	Volume	Occupancy	Demand
Smoothing	0.66	0.66	0.66
Multiplier	4.0	0.33	
Exponent	0.50	1.00	

Detector-to-Phase Assignment (5-6-3)								
Sys Det	1	2	3	4	5	6	7	8
Phase								
Sys Det	9	10	11	12	13	14	15	16
Phase								

Input File Port-Bit Assignments

332 Cabinet - For Reference Only

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
I-	3.2	1.1	4.5	2.1	3.4	1.3	4.7	2.3	3.6		6.6	5.1	5.2	6.7
		1.5	6.2			1.7	6.4		3.8		2.7	5.3	5.4	6.8
J-	3.1	1.2	4.6	2.2	3.3	1.4	4.8	2.4	3.5		2.8	5.5	5.6	2.5
		1.6	6.3			1.8	6.5		3.7		6.1	5.7	5.8	2.6

TOD SCHEDULE

Table 1 (8-2-1) *		
Time	Plan	OS
0600	1	A
1030	2	A
1400	3	A
2100	255	A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 2 (8-2-2)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 3 (8-2-3)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 4 (8-2-4)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 5 (8-2-5)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 6 (8-2-6)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

WEEKDAY ASSIGNMENT

Weekday Table Assignments (8-2-7)						
Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	1	1	1	1	2	2

HOLIDAY TABLES

Floating Holiday Table (8-2-8)

#	Mnth	Week	DOW	Table
1			.....	
2			.....	
3			.....	
4			.....	
5			.....	
6			.....	
7			.....	
8			.....	
9			.....	
10			.....	
11			.....	
12			.....	
13			.....	
14			.....	
15			.....	
16			.....	

Fixed Holiday Table (8-2-9)

#	Mnth	Day	DOW	Table
1			.....	
2			.....	
3			.....	
4			.....	
5			.....	
6			.....	
7			.....	
8			.....	
9			.....	
10			.....	
11			.....	
12			.....	
13			.....	
14			.....	
15			.....	
16			.....	

Solar Clock Data (8-4)

North Latitude	34
West Longitude	118
Local Time Zone	8

Sabbatical Clock (8-5)

Hebrew	Ped Recall
Sabbath	.....
Holiday	.....

Daylight Saving (8-6)

Enabled	YES

TOD FUNCTIONS

TOD Functions (8-3)

#	Start	End	DOW	Action	Phases
1			.....		.....
2			.....		.....
3			.....		.....
4			.....		.....
5			.....		.....
6			.....		.....
7			.....		.....
8			.....		.....
9			.....		.....
10			.....		.....
11			.....		.....
12			.....		.....
13			.....		.....
14			.....		.....
15			.....		.....
16			.....		.....

Action Codes:

0. None
1. Permitted
2. Restricted
4. Veh Min Recall
5. Veh Max Recall
6. Ped Recall
7. Bike Recall
8. Red Lock
9. Yellow Lock
10. Force/Max Lock
11. Double Entry
12. Y-Coord C
13. Y-Coord D
14. Free
15. Flashing
16. Walk 2
17. Max Green 2
18. Max Green 3
19. Rest in Walk
20. Rest in Red
21. Free Lag Phases
22. Special Functions
23. Truck Preempt
24. Conditional Service
25. Conditional Service
26. Leading Ped
41. Protected Permissive
42. Protected Permissive

Action Code = Phases added to normal setting

100+Action Code = Phases removed

200+Action Code = Phases replaced

COMMUNICATIONS

C2 (6-1-1)	*
Address	1
Protocol	AB3418
Limit Access	
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

C20 (6-1-2)	
Address	
Protocol	AB3418
Limit Access	
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

C21 (6-1-3)	
Address	
Protocol	AB3418
Limit Access	
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

Limit Access:

0-None
1-Status Only
2-Status, Set Pattern, Time
3-Status, Set Pattern, Time, Manual Plan

SOFT LOGIC

Soft Logic (6-2)

#	Data	OP	Data	OP	Data	OP	Data
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							

*Refer to User's Manual for Data and OP Codes

CALLBACK NUMBERS

Callback Numbers (6-3...3)	
Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

RAILROAD PREEMPTION

RR 1	(3-1-1)	Timing	Phase Flags (3-1-2)			Pedestrian Flags (3-1-3)			Overlap Flags (3-1-4)		
	Delay		Grn Hold	Yel Flash	Red Flash	Walk	Flash DW	Solid DW	Grn Hold	Yel Flash	Red Flash
	Clear1	10	.2..5...	.....	.....	.....	.....	.2.4.6.8	.....	.....	.....
	Clear 2		.....	.....	.....	.....	.....	.....	.....	.....	.....
	Clear 3		.....	.....	.....	.....	.....	.....	.....	.....	.....
	Hold		.....	.....	12345678	.....	.....	.....	.....	.....	ABCDEF
	Exit	5									
	Min Grn										
	Ped Clr										

Exit Parameters (3-1-5)			
Phase Green	Overlap Green	Vehicle Recall	Ped Call
.....	.....	12345678	.2.4.6.8

Configuration (3-1-6)		
Port	Latching	Power-Up
2.5	YES	FLASHING

RR 2	(3-2-1)	Timing	Phase Flags (3-2-2)			Pedestrian Flags (3-2-3)			Overlap Flags (3-2-4)		
	Delay		Grn Hold	Yel Flash	Red Flash	Walk	Flash DW	Solid DW	Grn Hold	Yel Flash	Red Flash
	Clear1	10	...4..7.	.....	.....	.....	.....	.2.4.6.8	.....	.....	.....
	Clear 2		.....	.....	.....	.....	.....	.....	.....	.....	.....
	Clear 3		.....	.....	.....	.....	.....	.....	.....	.....	.....
	Hold		123..6..	.....	.....	.2...6..	.....	...4...8	.....	.....	.....
	Exit										
	Min Grn										
	Ped Clr										

Exit Parameters (3-2-5)			
Phase Green	Overlap Green	Vehicle Recall	Ped Recall
.....	.....	...4..7.	.....

Configuration (3-2-6)		
Port	Latching	Power-up
2.6	YES	DARK

EMERGENCY VEHICLE PREEMPTION

EVA (3-A)	Preempt Timers			Phase Green	Overlap Green
	Delay	Clear	Max		
		30	30	.2..5...	.....

Port	Latching	Phase Termination
5.5	NO	ADVANCE

EVB (3-B)	Preempt Timers			Phase Green	Overlap Green
	Delay	Clear	Max		
		30	30	...4..7.	.....

Port	Latching	Phase Termination
5.6	NO	ADVANCE

EVC (3-C)	Preempt Timers			Phase Green	Overlap Green
	Delay	Clear	Max		
		30	30	1....6..	.....

Port	Latching	Phase Termination
5.7	NO	ADVANCE

EVD (3-D)	Preempt Timers			Phase Green	Overlap Green
	Delay	Clear	Max		
		30	30	..3....8	.....

Port	Latching	Phase Termination
5.8	NO	ADVANCE

INPUTS

		7 Wire I/C (2-1-5-1)			
		Input	Port	Input	Port
Enable	NO	R1	3.8	Free	3.6
Max ON		R2	3.5	D2	2.8
Max OFF		R3	3.7	D3	6.1

Manual Control (2-1-5-2)	
Input	Port
Manual Advance	6.6
Advance Enable	6.6

Cabinet Status (2-1-5-3)	
Input	Port
Flash Bus	
Door Ajar	
Flash Sense	6.7
Stop Time	6.8

Special Function (2-1-5-4)	
Input	Port
1	
2	
3	
4	

Battery Backup (2-1-5-5) *	
Port	Operation
2.7	NORMAL

Y-Coordination (2-1-5-6)	
Port C	Port D
6.1	2.8

OUTPUTS

Loadswitch Assignments (2-1-6) +							
A	1	2	22	3	4	24	9
B	5	6	26	7	8	28	10
X	13	14	0	11	12	0	0

Loadswitch Codes:

0 Unused (no output)
1-8 Vehicle 1-8
9-14 Overlap A-F
21-28 Ped 1-8
41-47 Special Functions
41 Protected Permissive Flashing Phase 1
43 Protected Permissive Flashing Phase 3
45 Protected Permissive Flashing Phase 5
47 Protected Permissive Flashing Phase 7
51-57 Special Functions
71-72 Seven Wire I/C

+ middle output of loadswitches 3 and 6
Channel 9 and 10

YELLOW YIELD COOORDINATION

					Force-Offs											
Y-Coord Plans (7-C,D)	Long Grn	No Grn	Offset	Perm	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-	Coord	Lag	Min Recall	Restricted
Plan C													.2...6..	.2.4.6.8	.....	.....
Plan D													.2...6..	.2.4.6.8	.....	.....

TRANSIT PRIORITY

Local Plans (3-E1...9)		Early Green	Green Extend	Inhibit Cycles	Phase 1 Minimum	Phase 2 Minimum	Phase 3 Minimum	Phase 4 Minimum	Phase 5 Minimum	Phase 6 Minimum	Phase 7 Minimum	Phase 8 Minimum
Plan 1	Green Factor											
Plan 2	Green Factor											
Plan 3	Green Factor											
Plan 4	Green Factor											
Plan 5	Green Factor											
Plan 6	Green Factor											
Plan 7	Green Factor											
Plan 8	Green Factor											
Plan 9	Green Factor											

Enable Priority (3-E-A)	
Enable in Plan	.....

Free Plans (3-E-E)	
Max Green Hold	Hold Phase
	.....

Access Utilities (9-5)	
Password	***
Timeout	

TRUCK PREEMPTION

Truck Preemption (3-F)	Passage	CarryOver	Clearance	Next Preempt	Phase Green	Det 2 Port	Det 3 Port	Det 4 Port	Sign Output	Slave Input	Slave Output

Location: I-215 S/B @ McCALL BLVD
System: COORDINATED
Master At: N/B LOCATION
District: 08
I/C:
Designed By:
Installed By: SAFWAN SAYED
Service Info:

Timing Change:	Date Start:	Date End:	Designed:	Installed:
3/14/2011	6/14/1995			3/14/2011

		FLASH
PHASE	1) W/B McCALL BLVD - LEFT TURN	[ ]
	2) E/B McCALL BLVD	[ ]
	3)	[ ]
	4) I-215 S/B OFF RAMP	[ ]
	5)	[ ]
	6) W/B McCALL BLVD	[ ]
	7)	[ ]
	8)	[ ]
OVERLAP	A)	[ ]
	B)	[ ]
	C)	[ ]
	D)	[ ]
	E)	[ ]
	F)	[ ]

Intersection Layout

Comments and Notes:

RAM Checksum

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CONFIGURATION PHASE FLAGS

Phases (2-1-1-1) *	
Permitted	1 2 . 4 . 6 . .
Restricted	. . . . .

Phase Recalls (2-1-1-2)	
Vehicle Min	. 2 . . . 6 . .
Vehicle Max	. . . . .
Pedestrian	. . . . .
Bicycle	. . . . .

Phase Locks (2-1-1-3) *	
Red	. . . . .
Yellow	. . . . .
Force/Max	. . . . .

Phase Features (2-1-1-4)	
Double Entry	. . . . .
Rest In Walk	. . . . .
Rest In Red	. . . . .
Walk 2	. . . . .
Max Green 2	. . . . .
Max Green 3	. . . . .

Startup (2-1-1-5)	*
First Green Phases	. 2 . . . 6 . .
Yellow Start Phases	. . . 4 . . . .
Yellow Start Overlaps	. . . . .
Startup All-Red	5.0
Vehicle Calls	1 2 3 4 5 6 7 8
Pedestrian Calls	. 2 . 4 . 6 . 8

Call To Phase (2-1-2-1)		Omit On Green	
1	. . . . .	1	. . . . .
2	. . . . .	2	. . . . .
3	. . . . .	3	. . . . .
4	. . . . .	4	. . . . .
5	. . . . .	5	. . . . .
6	. . . . .	6	. . . . .
7	. . . . .	7	. . . . .
8	. . . . .	8	. . . . .

Flashing Colors (2-1-2-2)	
Yellow Flash Phases	. . . . .
Yellow Flash Overlap	. . . . .
Flash In Red Phases	. . . . .
Flash In Red Overlap	. . . . .

Special Operation (2-1-2-3)	
Single Exit Phase	. . . . .
Driveway Signal Phases	. . . . .
Driveway Signal Overlaps	. . . . .
Leading Ped Phases	. . . . .

Protected Permissive (2-1-2-4)	
Protected Permissive	. . . . .

Pedestrian (2-1-3) *	
P1	. . . . .
P2	. 2 . . . . .
P3	. . . . .
P4	. . . . .
P5	. . . . .
P6	. . . . .
P7	. . . . .
P8	. . . . .

Overlap (2-1-4)				
Overlap	Parent	Omit	No Start	Not
A	. . . . .	. . . . .	. . . . .	. . . . .
B	. . . . .	. . . . .	. . . . .	. . . . .
C	. . . . .	. . . . .	. . . . .	. . . . .
D	. . . . .	. . . . .	. . . . .	. . . . .
E	. . . . .	. . . . .	. . . . .	. . . . .
F	. . . . .	. . . . .	. . . . .	. . . . .

PHASE TIMING

Phase (2-2)	-1- *	-2- *	-3- *	-4- *	-5- *	-6- *	-7- *	-8- *
--- Walk 1 ---	0	7	0	0	0	0	0	0
Flash Don't Walk	0	5	0	0	0	0	0	0
Minimum Green	5	5	0	5	0	5	0	0
Det Limit	0	0	0	0	0	0	0	0
Max Initial	0	0	0	0	0	0	0	0
Max Green 1	30	40	0	30	0	40	0	0
Max Green 2	0	0	0	0	0	0	0	0
Max Green 3	0	0	0	0	0	0	0	0
Extension	2.0	2.0	0.0	2.0	0.0	2.0	0.0	0.0
Maximum Gap	2.0	2.0	0.0	2.0	0.0	2.0	0.0	0.0
Minimum Gap	2.0	2.0	0.0	2.0	0.0	2.0	0.0	0.0
Add Per Vehicle	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Reduce Gap By	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Reduce Every	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	3.0	4.0	3.0	4.0	3.0	4.0	3.0	3.0
All-Red	0.5	0.5	0.0	0.5	0.0	0.5	0.0	0.0
Ped/Bike (2-3)	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
--- Walk 2 ---	0	0	0	0	0	0	0	0
Delay/Early Walk	0	0	0	0	0	0	0	0
Solid Don't Walk	0	0	0	0	0	0	0	0
Bike Green	0	0	0	0	0	0	0	0
Bike All-Red	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

OVERLAP TIMING

Overlap (2-4)	A	B	C	D	E	F
Green	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	5.0	5.0	5.0	5.0	5.0	5.0
Red	0.0	0.0	0.0	0.0	0.0	0.0

Red Revert

Red Revert (2-5)	
Time	5.0
Red To Sec (2-6)	
Red To Sec	OFF

COORDINATION

Local Plan (7-1...9) TIMING DATA [Offsets] Green Factors or Press [F] to Select Force-Off

	*	Cycle	Multi	Perm	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 1	Green Factor	100			61			25	37		24		66		
Plan 2	Green Factor	100			68			24	38		24		66		
Plan 3	Green Factor	100			68			21	40		25		65		
Plan 4	Green Factor														
Plan 5	Green Factor														
Plan 6	Green Factor														
Plan 7	Green Factor														
Plan 8	Green Factor														
Plan 9	Green Factor														

Local Plan (7-1...9) PHASE FLAGS

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 1	.2.4.6.8	.2...6..	.....	.....	.....	.....	.....	.....
Plan 2	.2.4.6.8	.2...6..	.....	.....	.....	.....	.....	.....
Plan 3	.2.4.6.8	.2...6..	.....	.....	.....	.....	.....	.....
Plan 4	.....	.....	.....	.....	.....	.....	.....	.....
Plan 5	.....	.....	.....	.....	.....	.....	.....	.....
Plan 6	.....	.....	.....	.....	.....	.....	.....	.....
Plan 7	.....	.....	.....	.....	.....	.....	.....	.....
Plan 8	.....	.....	.....	.....	.....	.....	.....	.....
Plan 9	.....	.....	.....	.....	.....	.....	.....	.....

Master Timer Sync (7-A)
Enable in Plans
.....

Master Sub Master	
Input	
Output	

FREE PLAN PHASE FLAGS

(7-E) Free	
Lag	Omit
.2.4.6.8	.....
Veh Min	Veh Max
.2...6..	.....
Ped	Bike
.....	.....
Cond	Cond Grn
.....	10

MANUAL COMMANDS

Manual Plan (4-1)	
Plan	OffSet
	A

Plan: 1-9
15 or 254 = Flash
14 or 255 = Free
Offset A, B, or C

Special Function Override (4-2)			
#	Control	#	Control
1	NORMAL	3	NORMAL
2	NORMAL	4	NORMAL

Detector Reset	(4-3)
Local Manual (4-4)	OFF

DETECTORS

Detector Attributes (5-1) *				Slot
Det	Type	Phases	Lock	
1	COUNT+CALL+EXTEND	. 2	NO	I2U
2	COUNT+CALL+EXTEND	. . . . . 6 . .	NO	J2U
3	COUNT+CALL+EXTEND	. . . 4	NO	I6U
4	COUNT+CALL+EXTEND	 8	NO	J6U
5	COUNT+CALL+EXTEND	. 2	NO	I2L
6	COUNT+CALL+EXTEND	. . . . . 6 . .	NO	J2L
7	COUNT+CALL+EXTEND	. . . 4	NO	I6L
8	COUNT+CALL+EXTEND	 8	NO	J6L
9	COUNT+CALL+EXTEND	. 2	NO	I4
10	COUNT+CALL+EXTEND	. . . . . 6 . .	NO	J4
11	COUNT+CALL+EXTEND	. . . 4	NO	I8
12	COUNT+CALL+EXTEND	 8	NO	J8
13	COUNT+CALL+EXTEND	. . . . 5 . . .	NO	J1
14	COUNT+CALL+EXTEND	1	NO	I1
15	COUNT+CALL+EXTEND	. . . . . 7 .	NO	J5
16	COUNT+CALL+EXTEND	. . 3	NO	I5
17	COUNT+CALL+EXTEND	. . . . 5 . . .	NO	J9U
18	COUNT+CALL+EXTEND	1	NO	I9U
19	COUNT+CALL+EXTEND	. . . . . 7 .	NO	J9L
20	COUNT+CALL+EXTEND	. . 3	NO	I9L
21	COUNT+CALL+EXTEND	. 2	NO	I3L
22	COUNT+CALL+EXTEND	. . . . . 6 . .	NO	J3L
23	COUNT+CALL+EXTEND	. . . 4	NO	I7L
24	COUNT+CALL+EXTEND	 8	NO	J7L
25	COUNT+CALL+EXTEND	. 2	NO	I3U
26	COUNT+CALL+EXTEND	. . . . . 6 . .	NO	J3U
27	COUNT+CALL+EXTEND	. . . 4	NO	I7U
28	COUNT+CALL+EXTEND	 8	NO	J7U
29	PEDESTRIAN	. 2	NO	I 12U
30	PEDESTRIAN	. . . . . 6 . .	NO	I 13U
31	PEDESTRIAN	. . . 4	NO	I 12L
32	PEDESTRIAN	 8	NO	I 13L

Detector Configuration (5-2)				
Det	Delay	Extend	Recall	Port
1			10	1.1
2			10	1.2
3			10	1.3
4			10	1.4
5			10	1.5
6			10	1.6
7			10	1.7
8			10	1.8
9			10	2.1
10			10	2.2
11			10	2.3
12			10	2.4
13			10	3.1
14			10	3.2
15			10	3.3
16			10	3.4
17			10	3.5
18			10	3.6
19			10	3.7
20			10	3.8
21			10	6.2
22			10	6.3
23			10	6.4
24			10	6.5
25			10	4.5
26			10	4.6
27			10	4.7
28			10	4.8
29			10	5.1
30			10	5.2
31			10	5.3
32			10	5.4

Failure Times(5-3)	Minutes
Maximum On Time	
Fail Reset Time	

Failure Override (5-4)	
Detectors 1-8	. . . . .
Detectors 9-16	. . . . .
Detectors 17-24	. . . . .
Detectors 25-32	. . . . .

System Detector Assignment (5-5)								
Sys Det	1	2	3	4	5	6	7	8
Det Num								
Sys Det	9	10	11	12	13	14	15	16
Det Num								

CIC Operation (5-6-1)	
Enable in Plans	. . . . .

CIC Values (5-6-2)	Volume	Occupancy	Demand
Smoothing	0.66	0.66	0.66
Multiplier	4.0	0.33	
Exponent	0.50	1.00	

Detector-to-Phase Assignment (5-6-3)								
Sys Det	1	2	3	4	5	6	7	8
Phase								
Sys Det	9	10	11	12	13	14	15	16
Phase								

Input File Port-Bit Assignments

332 Cabinet - For Reference Only

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
I-	3.2	1.1	4.5	2.1	3.4	1.3	4.7	2.3	3.6		6.6	5.1	5.2	6.7
		1.5	6.2			1.7	6.4		3.8		2.7	5.3	5.4	6.8
J-	3.1	1.2	4.6	2.2	3.3	1.4	4.8	2.4	3.5		2.8	5.5	5.6	2.5
		1.6	6.3			1.8	6.5		3.7		6.1	5.7	5.8	2.6

TOD SCHEDULE

Table 1 (8-2-1) *		
Time	Plan	OS
0600	1	A
1030	2	A
1400	3	A
2100	255	A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 2 (8-2-2)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 3 (8-2-3)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 4 (8-2-4)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 5 (8-2-5)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 6 (8-2-6)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

WEEKDAY ASSIGNMENT

Weekday Table Assignments (8-2-7)						
Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	1	1	1	1	2	2

HOLIDAY TABLES

Floating Holiday Table (8-2-8)

#	Mnth	Week	DOW	Table
1			.....	
2			.....	
3			.....	
4			.....	
5			.....	
6			.....	
7			.....	
8			.....	
9			.....	
10			.....	
11			.....	
12			.....	
13			.....	
14			.....	
15			.....	
16			.....	

Fixed Holiday Table (8-2-9)

#	Mnth	Day	DOW	Table
1			.....	
2			.....	
3			.....	
4			.....	
5			.....	
6			.....	
7			.....	
8			.....	
9			.....	
10			.....	
11			.....	
12			.....	
13			.....	
14			.....	
15			.....	
16			.....	

Solar Clock Data (8-4)

North Latitude	34
West Longitude	118
Local Time Zone	8

Sabbatical Clock (8-5)

Hebrew	Ped Recall
Sabbath	.....
Holiday	.....

Daylight Saving (8-6)

Enabled	YES

TOD FUNCTIONS

TOD Functions (8-3)

#	Start	End	DOW	Action	Phases
1			.....		.....
2			.....		.....
3			.....		.....
4			.....		.....
5			.....		.....
6			.....		.....
7			.....		.....
8			.....		.....
9			.....		.....
10			.....		.....
11			.....		.....
12			.....		.....
13			.....		.....
14			.....		.....
15			.....		.....
16			.....		.....

Action Codes:

0. None
1. Permitted
2. Restricted
4. Veh Min Recall
5. Veh Max Recall
6. Ped Recall
7. Bike Recall
8. Red Lock
9. Yellow Lock
10. Force/Max Lock
11. Double Entry
12. Y-Coord C
13. Y-Coord D
14. Free
15. Flashing
16. Walk 2
17. Max Green 2
18. Max Green 3
19. Rest in Walk
20. Rest in Red
21. Free Lag Phases
22. Special Functions
23. Truck Preempt
24. Conditional Service
25. Conditional Service
26. Leading Ped
41. Protected Permissive
42. Protected Permissive

Action Code = Phases added to normal setting

100+Action Code = Phases removed

200+Action Code = Phases replaced

COMMUNICATIONS

C2 (6-1-1)	*
Address	2
Protocol	AB3418
Limit Access	
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

C20 (6-1-2)	
Address	
Protocol	AB3418
Limit Access	
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

C21 (6-1-3)	
Address	
Protocol	AB3418
Limit Access	
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

Limit Access:

0-None
1-Status Only
2-Status, Set Pattern, Time
3-Status, Set Pattern, Time, Manual Plan

SOFT LOGIC

Soft Logic (6-2)							
#	Data	OP	Data	OP	Data	OP	Data
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							

*Refer to User's Manual for Data and OP Codes

CALLBACK NUMBERS

Callback Numbers (6-3...3)	
Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

RAILROAD PREEMPTION

RR 1

(3-1-1)	Timing	Phase Flags (3-1-2)			Pedestrian Flags (3-1-3)			Overlap Flags (3-1-4)		
Delay		Grn Hold	Yel Flash	Red Flash	Walk	Flash DW	Solid DW	Grn Hold	Yel Flash	Red Flash
Clear1	10	.2..5...	.....	.....	.....	.....	.2.4.6.8	.....	.....	.....
Clear 2		.....	.....	.....	.....	.....	.....	.....	.....	.....
Clear 3		.....	.....	.....	.....	.....	.....	.....	.....	.....
Hold		.....	.....	12345678	.....	.....	.....	.....	.....	ABCDEF
Exit	5									
Min Grn										
Ped Clr										

Exit Parameters (3-1-5)			
Phase Green	Overlap Green	Vehicle Recall	Ped Call
.....	.....	12345678	.2.4.6.8

Configuration (3-1-6)		
Port	Latching	Power-Up
2.5	YES	FLASHING

RR 2

(3-2-1)	Timing	Phase Flags (3-2-2)			Pedestrian Flags (3-2-3)			Overlap Flags (3-2-4)		
Delay		Grn Hold	Yel Flash	Red Flash	Walk	Flash DW	Solid DW	Grn Hold	Yel Flash	Red Flash
Clear1	10	...4..7.	.....	.....	.....	.....	.2.4.6.8	.....	.....	.....
Clear 2		.....	.....	.....	.....	.....	.....	.....	.....	.....
Clear 3		.....	.....	.....	.....	.....	.....	.....	.....	.....
Hold		123..6..	.....	.....	.2...6..	.....	...4...8	.....	.....	.....
Exit										
Min Grn										
Ped Clr										

Exit Parameters (3-2-5)			
Phase Green	Overlap Green	Vehicle Recall	Ped Recall
.....	.....	...4..7.	.....

Configuration (3-2-6)		
Port	Latching	Power-up
2.6	YES	DARK

EMERGENCY VEHICLE PREEMPTION

EVA (3-A)

Preempt Timers			Phase Green	Overlap Green
Delay	Clear	Max		
	30	30	.2..5...	.....

Port	Latching	Phase Termination
5.5	NO	ADVANCE

EVB (3-B)

Preempt Timers			Phase Green	Overlap Green
Delay	Clear	Max		
	30	30	...4..7.	.....

Port	Latching	Phase Termination
5.6	NO	ADVANCE

EVC (3-C)

Preempt Timers			Phase Green	Overlap Green
Delay	Clear	Max		
	30	30	1....6..	.....

Port	Latching	Phase Termination
5.7	NO	ADVANCE

EVD (3-D)

Preempt Timers			Phase Green	Overlap Green
Delay	Clear	Max		
	30	30	..3....8	.....

Port	Latching	Phase Termination
5.8	NO	ADVANCE

INPUTS

		7 Wire I/C (2-1-5-1)			
		Input	Port	Input	Port
Enable	NO	R1	3.8	Free	3.6
Max ON		R2	3.5	D2	2.8
Max OFF		R3	3.7	D3	6.1

Manual Control (2-1-5-2)	
Input	Port
Manual Advance	6.6
Advance Enable	6.6

Cabinet Status (2-1-5-3)	
Input	Port
Flash Bus	
Door Ajar	
Flash Sense	6.7
Stop Time	6.8

Special Function (2-1-5-4)	
Input	Port
1	
2	
3	
4	

Battery Backup (2-1-5-5) *	
Port	Operation
2.7	NORMAL

Y-Coordination (2-1-5-6)	
Port C	Port D
6.1	2.8

OUTPUTS

Loadswitch Assignments (2-1-6) +							
A	1	2	22	3	4	24	9
B	5	6	26	7	8	28	10
X	13	14	0	11	12	0	0

Loadswitch Codes:

0 Unused (no output)
1-8 Vehicle 1-8
9-14 Overlap A-F
21-28 Ped 1-8
41-47 Special Functions
41 Protected Permissive Flashing Phase 1
43 Protected Permissive Flashing Phase 3
45 Protected Permissive Flashing Phase 5
47 Protected Permissive Flashing Phase 7
51-57 Special Functions
71-72 Seven Wire I/C

+ middle output of loadswitches 3 and 6 Channel 9 and 10

YELLOW YIELD COOORDINATION

					Force-Offs											
Y-Coord Plans (7-C,D)	Long Grn	No Grn	Offset	Perm	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-	Coord	Lag	Min Recall	Restricted
Plan C													.2...6..	.2.4.6.8	.....	.....
Plan D													.2...6..	.2.4.6.8	.....	.....

TRANSIT PRIORITY

Local Plans (3-E1...9)		Early Green	Green Extend	Inhibit Cycles	Phase 1 Minimum	Phase 2 Minimum	Phase 3 Minimum	Phase 4 Minimum	Phase 5 Minimum	Phase 6 Minimum	Phase 7 Minimum	Phase 8 Minimum
Plan 1	Green Factor											
Plan 2	Green Factor											
Plan 3	Green Factor											
Plan 4	Green Factor											
Plan 5	Green Factor											
Plan 6	Green Factor											
Plan 7	Green Factor											
Plan 8	Green Factor											
Plan 9	Green Factor											

Enable Priority (3-E-A)	
Enable in Plan	.....

Free Plans (3-E-E)	
Max Green Hold	Hold Phase
	.....

Access Utilities (9-5)	
Password	***
Timeout	

TRUCK PREEMPTION

Truck Preemption (3-F)	Passage	CarryOver	Clearance	Next Preempt	Phase Green	Det 2 Port	Det 3 Port	Det 4 Port	Sign Output	Slave Input	Slave Output

Village at Junipero

NOISE IMPACT ANALYSIS

CITY OF MENIFEE

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NOVEMBER 1, 2022

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
Calveno	California Vehicle Noise
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dBA	A-weighted decibels
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
INCE	Institute of Noise Control Engineering
L_{eq}	Equivalent continuous (average) sound level
L_{max}	Maximum level measured over the time interval
L_{min}	Minimum level measured over the time interval
mph	Miles per hour
NR	Noise Reduction
Project	Village at Junipero
REMEL	Reference Energy Mean Emission Level
STC	Sound Transmission Class

EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this noise study to determine the noise exposure and the necessary noise abatement measures for the proposed residential development Village at Junipero ("Project"). The Project site is located to the west of Menifee Road, north of McCall Boulevard, east of Junipero Road, and south of Rouse Road in the City of Menifee. It is our understanding that the Project consists of the development of a multi-family apartment complex including 240 units in 24 two-story buildings, a leasing office, and a clubhouse building on a 19.25-acre site. This noise impact analysis was prepared to satisfy the City of Menifee noise level standards and ensure that adequate noise abatement measures are incorporated into the Project's development. In addition, recommendations for exterior and interior noise abatement are identified based on the latest Project site plans.

EXTERIOR NOISE ABATEMENT

The Project as designed will satisfy the City of Menifee 70 dBA CNEL exterior noise level standard for multi-family residential land uses with the construction of the proposed 6-foot-high noise barrier adjacent to Menifee Road. With the proposed noise barrier shown on Exhibit ES-A, the future exterior noise levels will range from 58.9 to 63.2 dBA CNEL in common outdoor activity areas (Tot Lot, Pool Area, Outdoor Amenities). The effective noise barrier height recommendations represent the minimum wall and/or berm combination height required to satisfy the City of Menifee exterior noise level standards.

The recommended noise control barriers should be constructed so that the top of each wall and /or berm combination extends to the planned height above the pad elevation of the lot it is shielding. When the road is elevated above the pad elevation, the barrier should extend to the recommended height above the highest point between the residential home and the road. To be effective, the barrier should provide a weight of at least 4 pounds per square foot of face area with no decorative cutouts or line-of-sight openings between shielded areas and the roadways, or a minimum transmission loss of 20 dBA. (1) The noise barrier could be constructed using the following materials:

- Masonry block;
- Stucco veneer over wood framing (or foam core), or 1-inch-thick tongue and groove wood of sufficient weight per square foot;
- Glass (1/4-inch-thick), or other transparent material with sufficient weight per square foot capable of providing a minimum transmission loss of 20 dBA;
- Earthen berm;
- Any combination of these construction materials.

The barrier shall consist of a solid face from top to bottom. Unnecessary openings or decorative cutouts shall not be made. All gaps (except for weep holes) should be filled with grout or caulking.

INTERIOR NOISE ABATEMENT

To satisfy the City of Menifee 45 dBA CNEL interior noise level criteria, first-and second-floor receivers adjacent to Heritage Lake Drive and Junipero Road will require a Noise Reduction (NR) of up to 22.8 dBA and a windows-closed condition requiring a means of mechanical ventilation (e.g. air conditioning). To satisfy the City of Menifee 45 dBA CNEL interior noise level criteria, first-and second-floor receivers adjacent to Menifee Road will require a Noise Reduction (NR) of up to 27.4 dBA and a windows-closed condition requiring a means of mechanical ventilation (e.g. air conditioning). Since typical building construction will provide a Noise Reduction (NR) of approximately 12 dBA with "windows open" and a minimum 25 dBA noise reduction with "windows closed." (2) (3) To meet the City of Menifee 45 dBA CNEL interior noise standards for residential land use the Project shall provide the following or equivalent noise abatement measures:

- Windows & Glass Doors: Second Story facades of Building 14 through 17 adjacent to Menifee Road require windows and glass doors with well-fitted, well-weather-stripped assemblies with minimum sound transmission class (STC) ratings of 28.
- Doors (Non-Glass): All exterior doors shall be well weather-stripped and have minimum STC ratings of 27. Well-sealed perimeter gaps around the doors are essential to achieve the optimal STC rating. (4)
- Walls: At any penetrations of exterior walls by pipes, ducts, or conduits, the space between the wall and pipes, ducts, or conduits shall be caulked or filled with mortar to form an airtight seal.
- Roof: Roof sheathing of wood construction shall be per manufacturer's specification or caulked plywood of at least one-half inch thick. Ceilings shall be per manufacturer's specification or well-sealed gypsum board of at least one-half inch thick. Insulation with at least a rating of R-19 shall be used in the attic space.
- Ventilation: Arrangements for any habitable room shall be such that any exterior door or window can be kept closed when the room is in use and still receive circulated air. A forced air circulation system (e.g. air conditioning) or active ventilation system (e.g. fresh air supply) shall be provided which satisfies the requirements of the Uniform Building Code.

With the interior noise abatement measures provided in this study, the proposed Project is expected to satisfy the City of Menifee 45 dBA CNEL interior noise level standards for residential development.

EXHIBIT ES-A: SUMMARY OF RECOMMENDATIONS



OFF-SITE TRAFFIC NOISE ANALYSIS

Traffic generated by the operation of the proposed Project will influence the traffic noise levels in surrounding off-site areas. To quantify the traffic noise increases on the surrounding off-site areas, the changes in traffic noise levels on nineteen roadway segments surrounding the Project site were calculated based on the change in the average daily traffic (ADT) volumes. The traffic noise levels provided in this analysis are based on the traffic forecasts found in *Village at Junipero Traffic Impact Analysis*. (5) To assess the off-site noise level impacts associated with the proposed Project, noise level contour boundaries were developed for Existing and Opening Year Cumulative traffic conditions. Land uses along roadway segments analyzed would experience Project related traffic noise level increases of 0.1 to 4.5 dBA CNEL. Therefore, the analysis shows that the Project-related traffic noise level increases would be *less than significant*.

OPERATIONAL NOISE ANALYSIS

The Project would include specific type of operational noise attributable to the Project, including swimming pool activities, outdoor activity areas, parking lot vehicle movements, air conditioning units, and trash enclosure activities. Project operational noise levels during the daytime hours at off-site receiver locations are expected to range from 41.5 to 47.1 dBA $L_{eq.}$ Project operational noise levels during the nighttime hours at off-site receiver locations are expected to range from 34.5 to 41.8 dBA L_{eq}. Project operational noise levels will satisfy Section 9.215.060 of the City of Menifee Development Code daytime and nighttime noise standards of 65 dBA and 45 dBA L_{eq}, respectively, at all residential receivers. Therefore, potential operational noise impacts for the residential land use are anticipated to result *less than significant* impacts.

CONSTRUCTION NOISE ANALYSIS

Using sample reference noise levels to represent the planned construction activities of the Village at Junipero site, this analysis estimates the Project-related construction noise levels at nearby sensitive receiver locations. Since the City of Menifee General Plan and Municipal Codes do not identify specific construction noise level thresholds, an hourly average L_{eq} threshold is identified based on the Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual* for noise sensitive residential use. The Project-related short-term construction noise levels are expected to range from 57.9 to 62.6 dBA L_{eq} and will satisfy the 80 dBA L_{eq} construction noise level threshold at all receiver locations. Additionally, construction activities are planned to typically occur between 6:30 a.m. and 7:00 p.m. and would comply with the City of Menifee limitation on allowable hours of construction per Section 9.215.060. Therefore, based on the results of this analysis, all nearby sensitive receiver locations will experience *less than significant* impacts due to Project construction noise levels.

CONSTRUCTION VIBRATION

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures and soil type. It is expected that ground-borne vibration from Project construction activities would cause only intermittent,

localized intrusion. Ground-borne vibration levels resulting from typical construction activities occurring within the Project site were estimated by data published by the Federal Transit Administration (FTA). At the nearest receivers Project construction vibration velocity levels are estimated to range from 0.00 to 0.023 in/sec PPV. Based on maximum acceptable continuous vibration threshold of 0.30 PPV (in/sec), the typical Project construction vibration levels will not exceed the City of Menifee thresholds at properties located adjacent to the Project site and vibration impacts would be *less than significant*.

SUMMARY OF CEQA SIGNIFICANCE FINDINGS

The results of this Village at Junipero Noise Impact Analysis are summarized below based on the significance criteria in Section 4 of this report consistent with Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (6). Table ES-1 shows the findings of significance for each potential noise and/or vibration impact under CEQA before and after any required mitigation measures.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
On-Site Traffic Noise	7	*Significant*	*Less Than Significant*
Off-Site Traffic Noise	8	*Less Than Significant*	-
Operational Noise	10	*Less Than Significant*	-
Construction Noise	11	*Less Than Significant*	-
Construction Vibration		*Less Than Significant*	-

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1 INTRODUCTION

This noise analysis has been completed to determine the noise impacts associated with the development of the proposed Village at Junipero ("Project"). This noise study briefly describes the proposed Project, provides information regarding noise fundamentals, sets out the local regulatory setting, presents the study methods and procedures noise analysis, evaluates the potential noise impacts from operation and construction of the Project, and as necessary, identifies mitigation measures to reduce impacts.

1.1 SITE LOCATION

The Project site is located to the west of Menifee Road, north of McCall Boulevard, east of Junipero Road, and south of Rouse Road (APNs 333-070-018, 333-070-019, 333-070-053) in the City of Menifee, as shown on Exhibit 1-A. The closest major airport is the Perris Valley Airport located roughly 4 miles northwest of the Project site.

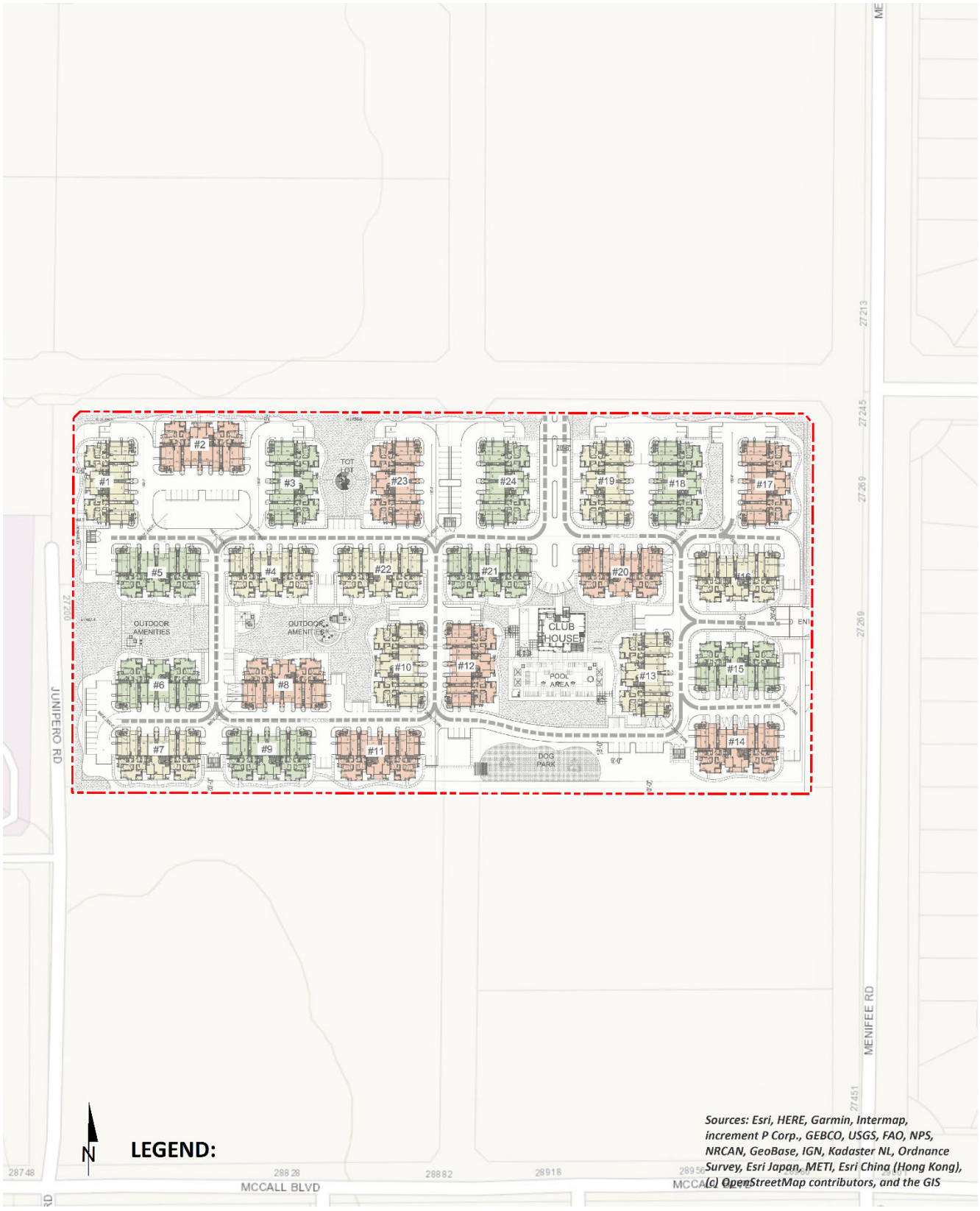
1.2 PROJECT DESCRIPTION

The Project consists of the development of a multi-family apartment complex including 240 units in 24 two-story buildings, a leasing office, and a clubhouse building on a 19.25-acre site, as shown on Exhibit 1-B.

EXHIBIT 1-A: LOCATION MAP



EXHIBIT 1-B: SITE PLAN



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2 FUNDAMENTALS

Noise has been simply defined as "unwanted sound." Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health. Noise is measured on a logarithmic scale of sound pressure level known as a decibel (dB). A-weighted decibels (dBA) approximate the subjective response of the human ear to broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies which are audible to the human ear. Exhibit 2-A presents a summary of the typical noise levels and their subjective loudness and effects that are described in more detail below.

EXHIBIT 2-A: TYPICAL NOISE LEVELS

COMMON OUTDOOR ACTIVITIES	COMMON INDOOR ACTIVITIES	A - WEIGHTED SOUND LEVEL dBA	SUBJECTIVE LOUDNESS	EFFECTS OF NOISE
THRESHOLD OF PAIN		140	INTOLERABLE OR DEAFENING	HEARING LOSS
NEAR JET ENGINE		130		
		120		
JET FLY-OVER AT 300m (1000 ft)	ROCK BAND	110		
LOUD AUTO HORN		100	VERY NOISY	
GAS LAWN MOWER AT 1m (3 ft)		90		
DIESEL TRUCK AT 15m (50 ft), at 80 km/hr (50 mph)	FOOD BLENDER AT 1m (3 ft)	80		SPEECH INTERFERENCE
NOISY URBAN AREA, DAYTIME	VACUUM CLEANER AT 3m (10 ft)	70	LOUD	
HEAVY TRAFFIC AT 90m (300 ft)	NORMAL SPEECH AT 1m (3 ft)	60		
QUIET URBAN DAYTIME	LARGE BUSINESS OFFICE	50	MODERATE	SLEEP DISTURBANCE
QUIET URBAN NIGHTTIME	THEATER, LARGE CONFERENCE ROOM (BACKGROUND)	40		
QUIET SUBURBAN NIGHTTIME	LIBRARY	30	FAINT	NO EFFECT
QUIET RURAL NIGHTTIME	BEDROOM AT NIGHT, CONCERT HALL (BACKGROUND)	20		
	BROADCAST/RECORDING STUDIO	10	VERY FAINT	
LOWEST THRESHOLD OF HUMAN HEARING	LOWEST THRESHOLD OF HUMAN HEARING	0		

Source: Environmental Protection Agency Office of Noise Abatement and Control, Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety (EPA/ONAC 550/9-74-004) March 1974.

2.1 RANGE OF NOISE

Since the range of intensities that the human ear can detect is so large, the scale frequently used to measure intensity is a scale based on multiples of 10, the logarithmic scale. The scale for measuring intensity is the decibel scale. Each interval of 10 decibels indicates a sound energy ten times greater than before, which is perceived by the human ear as being roughly twice as loud. (7) The most common sounds vary between 40 dBA (very quiet) to 100 dBA (very loud). Normal conversation at three feet is roughly at 60 dBA, while loud jet engine noises equate to 110 dBA

at approximately 100 feet, which can cause serious discomfort. (8) Another important aspect of noise is the duration of the sound and the way it is described and distributed in time.

2.2 NOISE DESCRIPTORS

Environmental noise descriptors are generally based on averages, rather than instantaneous, noise levels. The most commonly used figure is the equivalent level (L_{eq}). Equivalent sound levels are not measured directly but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period and is commonly used to describe the "average" noise levels within the environment.

To describe the time-varying character of environmental noise, the statistical or percentile noise descriptors L_{50}, L_{25}, L_8 and L_2, are commonly used. The percentile noise descriptors are the noise levels equaled or exceeded during 50 percent, 25 percent, 8 percent, and 2 percent of a stated time. Sound levels associated with the L_2 and L_8 typically describe transient or short-term events, while levels associated with the L_{50} describe the steady state (or median) noise conditions. While the L_{50} describes the median noise levels occurring 50 percent of the time, the L_{eq} accounts for the total energy (average) observed for the entire hour. Therefore, the L_{eq} noise descriptor is generally 1-2 dBA higher than the L_{50} noise level.

Peak hour or average noise levels, while useful, do not completely describe a given noise environment. Noise levels lower than peak hour may be disturbing if they occur during times when quiet is most desirable, namely evening and nighttime (sleeping) hours. To account for this, the Community Noise Equivalent Level (CNEL), representing a composite 24-hour noise level is utilized. The CNEL is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time of day corrections require the addition of 5 decibels to dBA L_{eq} sound levels in the evening from 7:00 p.m. to 10:00 p.m., and the addition of 10 decibels to dBA L_{eq} sound levels at night between 10:00 p.m. and 7:00 a.m. These additions are made to account for the noise sensitive time periods during the evening and night hours when sound appears louder. CNEL does not represent the actual sound level heard at any time, but rather represents the total sound exposure. The City of Menifee relies on the 24-hour CNEL level to assess land use compatibility with transportation related noise sources.

2.3 SOUND PROPAGATION

When sound propagates over a distance, it changes in level and frequency content. The way noise reduces with distance depends on the following factors.

2.3.1 GEOMETRIC SPREADING

Sound from a localized source (i.e., a stationary point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Highways consist of several localized noise sources on a defined path and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source. (7)

2.3.2 GROUND ABSORPTION

The propagation path of noise from a highway to a receptor is usually very close to the ground. Noise attenuation from ground absorption and reflective wave canceling adds to the attenuation associated with geometric spreading. Traditionally, the excess attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually sufficiently accurate for distances of less than 200 ft. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receptor, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receptor such as soft dirt, grass, or scattered bushes and trees), an excess ground attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance from a line source. (9)

2.3.3 ATMOSPHERIC EFFECTS

Receptors located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound levels can be increased at large distances (e.g., more than 500 feet) due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects. (7)

2.3.4 SHIELDING

A large object or barrier in the path between a noise source and a receptor can substantially attenuate noise levels at the receptor. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Shielding by trees and other such vegetation typically only has an “out of sight, out of mind” effect. That is, the perception of noise impact tends to decrease when vegetation blocks the line-of-sight to nearby resident. However, for vegetation to provide a substantial, or even noticeable, noise reduction, the vegetation area must be at least 15 feet in height, 100 feet wide and dense enough to completely obstruct the line-of sight between the source and the receiver. This size of vegetation may provide up to 5 dBA of noise reduction. The FHWA does not consider the planting of vegetation to be a noise abatement measure. (9)

2.4 NOISE CONTROL

Noise control is the process of obtaining an acceptable noise environment for an observation point or receptor by controlling the noise source, transmission path, receptor, or all three. This concept is known as the source-path-receptor concept. In general, noise control measures can be applied to these three elements.

2.5 NOISE BARRIER ATTENUATION

Effective noise barriers can reduce noise levels by 10 to 15 dBA, cutting the loudness of traffic noise in half. A noise barrier is most effective when placed close to the noise source or receptor. Noise barriers, however, do have limitations. For a noise barrier to work, it must be high enough and long enough to block the path of the noise source. (9)

2.6 LAND USE COMPATIBILITY WITH NOISE

Some land uses are more tolerant of noise than others. For example, schools, hospitals, churches, and residences are more sensitive to noise intrusion than are commercial or industrial developments and related activities. As ambient noise levels affect the perceived amenity or livability of a development, so too can the mismanagement of noise impacts impair the economic health and growth potential of a community by reducing the area's desirability as a place to live, shop and work. For this reason, land use compatibility with the noise environment is an important consideration in the planning and design process. The FHWA encourages State and Local government to regulate land development in such a way that noise-sensitive land uses are either prohibited from being located adjacent to a highway, or that the developments are planned, designed, and constructed in such a way that noise impacts are minimized. (10)

2.8 COMMUNITY RESPONSE TO NOISE

Community responses to noise may range from registering a complaint by telephone or letter, to initiating court action, depending upon everyone's susceptibility to noise and personal attitudes about noise. Several factors are related to the level of community annoyance including:

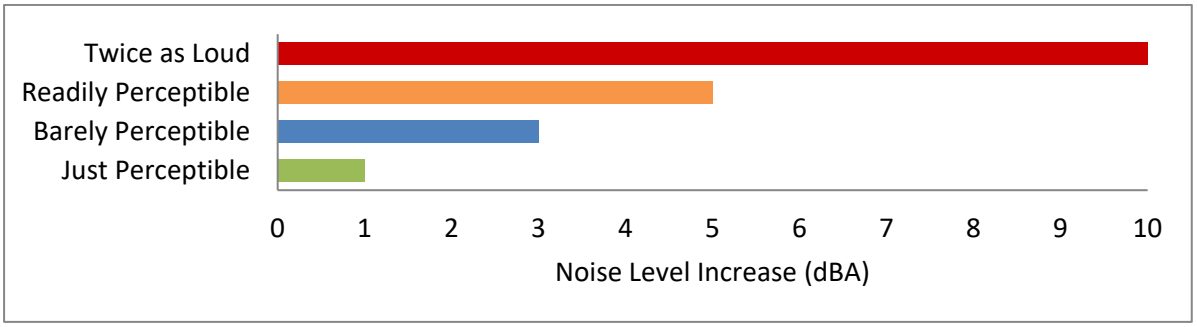
- Fear associated with noise producing activities;
- Socio-economic status and educational level;
- Perception that those affected are being unfairly treated;
- Attitudes regarding the usefulness of the noise-producing activity;
- Belief that the noise source can be controlled.

Approximately ten percent of the population has a very low tolerance for noise and will object to any noise not of their making. Consequently, even in the quietest environment, some complaints will occur. Another twenty-five percent of the population will not complain even in very severe noise environments. Thus, a variety of reactions can be expected from people exposed to any given noise environment. (11) Surveys have shown that about ten percent of the people exposed to traffic noise of 60 dBA will report being highly annoyed with the noise, and each increase of one dBA is associated with approximately two percent more people being highly annoyed. When

traffic noise exceeds 60 dBA or aircraft noise exceeds 55 dBA, people may begin to complain. (11)

Despite this variability in behavior on an individual level, the population can be expected to exhibit the following responses to changes in noise levels as shown on Exhibit 2-B. An increase or decrease of 1 dBA cannot be perceived except in carefully controlled laboratory experiments, a change of 3 dBA is considered *barely perceptible*, and changes of 5 dBA are considered *readily perceptible*. (12)

EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION



2.9 VIBRATION

As defined in the Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual* (6) and the California Department of Transportation (Caltrans) *Transportation and Construction Vibration Guidance Manual* (13), vibration is the periodic oscillation of a medium or object. The rumbling sound caused by the vibration of room surfaces is called structure-borne noise. Sources of ground-borne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or human-made causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, such as factory machinery, or transient, such as explosions. As is the case with airborne sound, ground-borne vibrations may be described by amplitude and frequency. Typical outdoor sources of vibration waves that can propagate through the ground and may create perceptible ground-borne vibration in nearby buildings include construction equipment, steel-wheeled trains, and traffic on rough roads. If the roadway is fairly smooth, the vibration from rubber-tired traffic is rarely perceptible (6).

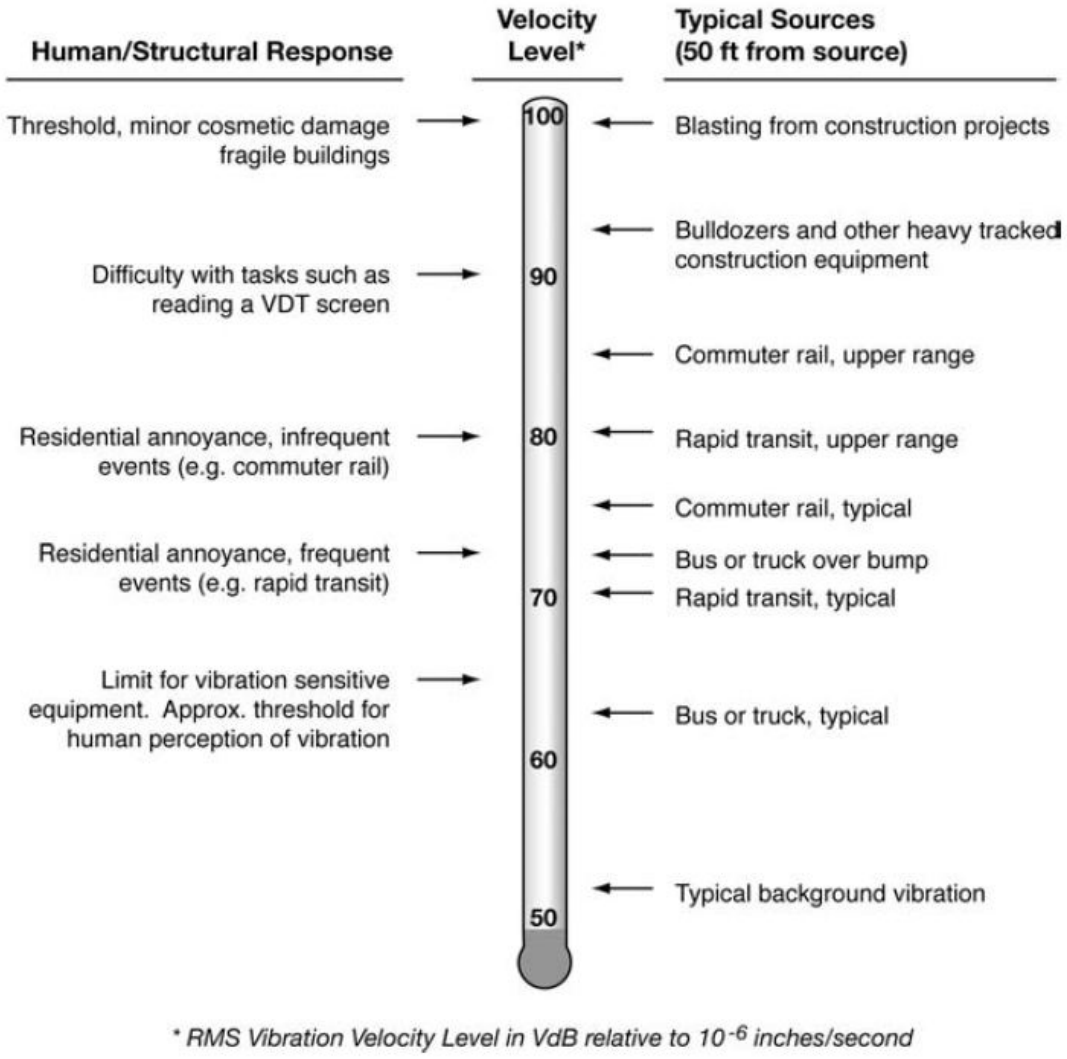
Additionally, in contrast to airborne noise, ground-borne vibration outdoors is not a common environmental problem and annoyance from ground-borne vibration is almost exclusively an indoor phenomenon (6). Therefore, the effects of vibrations should only be evaluated at a structure and the effects of the building structure on the vibration should be considered. Wood-frame buildings, such as typical residential structures, are more easily excited by ground vibration than heavier buildings. In contrast, large masonry buildings with spread footings have a low response to ground vibration (6). In general, the heavier a building is, the lower the response will be to the incident vibration energy. However, all structurers reduce vibration levels due to the coupling of the building to the soil.

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal (6). The PPV is most frequently used to describe vibration impacts to buildings but is not always suitable for evaluating human response (annoyance) because it takes some time for the human body to respond to vibration signals. Instead, the human body responds to average vibration amplitude often described as the root mean square (RMS). The RMS amplitude is defined as the average of the squared amplitude of the signal and is most frequently used to describe the effect of vibration on the human body (6). However, the RMS amplitude and PPV are related mathematically, and the RMS amplitude of equipment is typically calculated from the PPV reference level. The RMS amplitude is approximately 70% of the PPV (13). Thus, either can be used on the description of vibration impacts.

While not universally accepted, vibration decibel notation (VdB) is another vibration notation developed and used by the FTA in their guidance manual to describe vibration levels and provide a background of common vibration levels and set vibration limits (14). Decibel notation (VdB) serves to reduce the range of numbers used to describe vibration levels and is used in this report to describe vibration levels.

As stated in the FTA guidance manual, the background vibration-velocity level in residential areas is generally 50 VdB. Ground-borne vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels. Typical outdoor sources of perceptible ground-borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the ground-borne vibration is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings. Exhibit 2-C illustrates common vibration sources and the human and structural response to ground-borne vibration.

EXHIBIT 2-C: TYPICAL LEVELS OF GROUND-BORNE VIBRATION



** RMS Vibration Velocity Level in VdB relative to 10^{-6} inches/second*

Source: Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual*.

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3 REGULATORY SETTING

To limit population exposure to physically and/or psychologically damaging as well as intrusive noise levels, the federal government, the State of California, various county governments, and most municipalities in the state have established standards and ordinances to control noise. In most areas, automobile and truck traffic is the major source of environmental noise. Traffic activity generally produces an average sound level that remains constant with time. Air and rail traffic, and commercial and industrial activities are also major sources of noise in some areas. Federal, state, and local agencies regulate different aspects of environmental noise. Federal and state agencies generally set noise standards for mobile sources such as aircraft and motor vehicles, while regulation of stationary sources is left to local agencies.

3.1 STATE OF CALIFORNIA NOISE REQUIREMENTS

The State of California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires that each county and city adopt a General Plan that includes a Noise Element which is to be prepared per guidelines adopted by the Governor's Office of Planning and Research (OPR). (15) The purpose of the Noise Element is to *limit the exposure of the community to excessive noise levels*. In addition, the California Environmental Quality Act (CEQA) requires that all known environmental effects of a project be analyzed, including environmental noise impacts.

3.2 STATE OF CALIFORNIA BUILDING CODE

The State of California's noise insulation standards for all residential units are codified in the California Code of Regulations (CCR), Title 24, Building Standards Administrative Code, Chapter 12, Section 1206. These noise standards are applied to new construction that contains dwelling units or sleeping units, such as residential and hotel or motel uses, in California for controlling interior noise levels resulting from exterior noise sources. For new buildings, the acceptable interior noise limit is 45 dBA CNEL in habitable rooms (16).

3.3 CITY OF MENIFEE GENERAL PLAN NOISE ELEMENT

The City of Menifee has adopted a Noise Element of the General Plan to control and abate environmental noise, and to protect the citizens of City of Menifee from excessive exposure to noise. (17) The Noise Element specifies the maximum allowable unmitigated exterior noise levels for new developments impacted by transportation noise sources such as arterial roads, freeways, airports and railroads. In addition, the Noise Element identifies several polices to minimize the impacts of excessive noise levels throughout the community and establishes noise level requirements for all land uses. To protect City of Menifee residents from excessive noise, the Noise Element contains the following goal related to the Project:

N-1 Noise-sensitive land uses are protected from excessive noise and vibration exposure.

The noise policies specified in the City of Menifee Noise Element provide the guidelines necessary to satisfy this goal. Policy N-1.2 states that new developments are required to *comply with the noise standards of local, regional, and state building code regulations*, including the City's Municipal Code, Title 24 of the California code of Regulations, and the California Green Building Code, and this analysis has been prepared to satisfy the 45 dBA CNEL interior noise level standards of the Title 24 of the California Code of Regulations, previously discussed in Section 3.2. The Noise Element provides Policy N-1.11 to reduce excessive noise impacts from transportation and discourages the siting of noise-sensitive uses in areas in excess of 65 dBA CNEL without appropriate mitigation. (17)

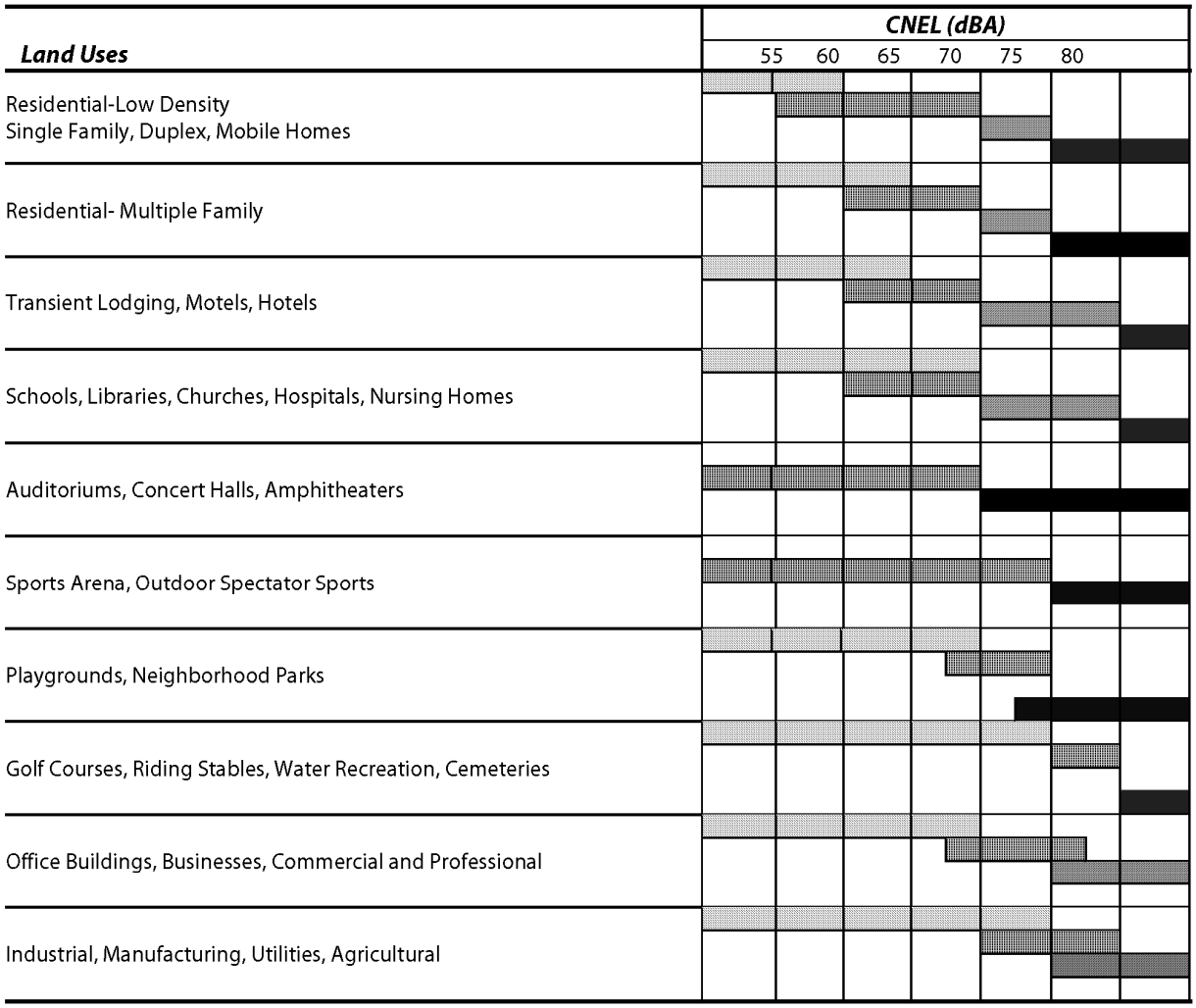
LAND USE COMPATIBILITY

The noise criteria identified in the City of Menifee Noise Element are guidelines to evaluate the land use compatibility of transportation related noise. The compatibility criteria, shown on Exhibit 3-A, provides the City with a planning tool to gauge the compatibility of land uses relative to existing and future exterior noise levels.

Per the City's *Noise Element Background Document and Definitions*, *Land Use Compatibility for Community Noise Environments* (Table N-b3), the single-family residential land use within the Project is considered *normally acceptable* with noise levels below 60 dBA CNEL. *Conditionally acceptable* single-family residential land uses experience noise levels approaching 70 dBA CNEL. For *conditionally acceptable* land use, *new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and the needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.*

Consistent with the land use compatibility guidelines and Noise Element Policy N-1.11, this noise study has been prepared to satisfy an exterior noise level of less than 70 dBA CNEL for multi-family residential land use. An interior noise level of less than 45 dBA CNEL shall be required for residential uses within the Project. The 70 dBA CNEL exterior noise standards typically apply to outdoor areas where people congregate. In the case of residential projects, the standards typically apply to common outdoor activity areas for multi-family units.

EXHIBIT 3-A: LAND USE COMPATIBILITY FOR COMMUNITY NOISE ENVIRONMENTS



Normally Acceptable:
Specified land use is satisfactory based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

Conditionally Acceptable:
New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and the needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

Normally Unacceptable:
New construction or development should generally be discouraged. If new construction does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

Clearly Unacceptable:
New construction or development generally should not be undertaken.

Source: California Office of Noise Control. Guidelines for the Preparation and Content of Noise Elements of the General Plan. February 1976. Adapted from the US EPA Office of Noise Abatement Control, Washington D.C. Community Noise. Prepared by Wyle Laboratories. December 1971.

Source: City of Menifee General Plan, Noise Background Document and Definitions, Table N-b3.

3.4 OPERATIONAL NOISE STANDARDS

To analyze noise impacts originating from a designated fixed location or private property such as Village at Junipero Project, stationary-source (operational) noise such as the expected swimming pool activities, outdoor activity areas, parking lot vehicle movements, air conditioning units, and trash enclosure activities are typically evaluated against standards established under a jurisdiction's Development Code or General Plan.

The City of Menifee Development Code, Chapter 9.215 Noise Control Regulations, Section 9.215.060 Table 9.215.060-1 establishes the permissible noise level that may intrude into a neighbor's property. The Development Code establishes the exterior noise level criteria for noise-sensitive residential properties affected by stationary noise sources. For residential properties, the exterior noise level shall not exceed 65 dBA L_{eq} during daytime hours (7:00 a.m. to 10:00 p.m.) and shall not exceed 45 dBA L_{eq} during the nighttime hours (10:00 p.m. to 7:00 a.m.). (18) Since existing uses in the Project study area include non-residential, medical/hospital, and school uses, and the City of Menifee does not identify exterior noise level standards specific to these uses, the residential exterior noise level limits are applied to all noise-sensitive receiver locations in the Project study area. The City of Menifee Development Code noise regulations are included in Appendix 3.1.

TABLE 3-1: OPERATIONAL NOISE STANDARDS

Jurisdiction	Land Use	Time Period	Exterior Noise Level Standards (dBA L_{eq})[2]
City of Menifee[1]	Residential	Daytime (7:00 a.m. - 10:00 p.m.)	65
		Nighttime (10:00 p.m. - 7:00 a.m.)	45

[1] City of Menifee Development Code, Section 9.215.060 (Appendix 3.1).

[2] L_{eq} represents a steady state sound level containing the same total energy as a time varying signal over a given sample period.

3.5 CONSTRUCTION NOISE STANDARDS

To control noise impacts associated with the construction of the proposed Project, the City has established limits to the hours of operation. Section 9.215.060(C) of the City's Municipal Code indicates that private construction projects, located within one-quarter of a mile from an occupied residence, are considered exempt from the Development Code noise standards if they occur within the permitted hours of 6:30 a.m. and 7:00 p.m. from, with no activity allowed on Sundays and nationally recognized holidays. (18) However, neither the City of Menifee General Plan Noise Element or Development Code establish numeric maximum acceptable construction source noise levels at potentially affected receivers, which would allow for a quantified determination of what CEQA constitutes a *substantial temporary or permanent increase in ambient noise levels*. Therefore, a numerical construction threshold based on Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual* is used for analysis of daytime construction impacts, as discussed below.

According to the FTA, local noise ordinances are typically not very useful in evaluating construction noise. They usually relate to nuisance and hours of allowed activity, and sometimes specify limits in terms of maximum levels, but are generally not practical for assessing the impact of a construction project. Project construction noise criteria should account for the existing noise environment, the absolute noise levels during construction activities, the duration of the construction, and the adjacent land use. Due to the lack of standardized construction noise thresholds, the FTA provides guidelines that can be considered reasonable criteria for construction noise assessment. The FTA considers a daytime exterior construction noise level of 80 dBA L_{eq} as a reasonable threshold for noise sensitive residential land use. (19 p. 179)

3.6 VIBRATION STANDARDS

Construction activity can result in varying degrees of ground-borne vibration, depending on the equipment and methods used, distance to the affected structures and soil type. Construction vibration is generally associated with pile driving and rock blasting. Other construction equipment such as air compressors, light trucks, hydraulic loaders, etc., generates little or no ground vibration (20). To analyze vibration impacts originating from the operation and construction of the Village at Junipero, vibration-generating activities are appropriately evaluated against standards established under a City's Municipal Code, if such standards exist. However, the City of Menifee does not identify specific vibration level limits. Therefore, for analysis purposes, the Caltrans *Transportation and Construction Vibration Guidance Manual*, (13 p. 38) Table 19, vibration damage are used in this noise study to assess potential temporary construction-related impacts at adjacent building locations. The nearest noise sensitive buildings adjacent to the Project site can best be described as "older residential structures" with a maximum acceptable continuous vibration threshold of 0.30 PPV (in/sec).

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4 SIGNIFICANCE CRITERIA

The following significance criteria are based on currently adopted guidance provided by Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (21) For the purposes of this report, impacts would be potentially significant if the Project results in or causes:

A. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

B. Generation of excessive ground-borne vibration or ground-borne noise levels?

C. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

4.1 NOISE LEVEL INCREASES (THRESHOLD A)

Noise level increases resulting from the Project are evaluated based on the Appendix G CEQA Guidelines described above at the closest sensitive receiver locations. Under CEQA, consideration must be given to the magnitude of the increase, the existing baseline ambient noise levels, and the location of noise-sensitive receivers to determine if a noise increase represents a significant adverse environmental impact. This approach *recognizes that there is no single noise increase that renders the noise impact significant.* (22) This is primarily because of the wide variation in individual thresholds of annoyance and differing individual experiences with noise. Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted—the so-called *ambient* environment.

In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will typically be judged. The Federal Interagency Committee on Noise (FICON) (23) developed guidance to be used for the assessment of project-generated increases in noise levels that consider the ambient noise level. The FICON recommendations are based on studies that relate aircraft noise levels to the percentage of persons highly annoyed by aircraft noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, these recommendations are often used in environmental noise impact assessments involving the use of cumulative noise exposure metrics, such as the average-daily noise level (CNEL) and equivalent continuous noise level (L_{eq}).

The FICON guidance provides an established source of criteria to assess the impacts of substantial temporary or permanent increase in baseline ambient noise levels. Based on the FICON criteria, the amount to which a given noise level increase is considered acceptable is reduced when the without Project (baseline) noise levels are already shown to exceed certain land-use specific exterior noise level criteria. The specific levels are based on typical responses to noise level increases of 5 dBA or *readily perceptible*, 3 dBA or *barely perceptible*, and 1.5 dBA depending on the underlying without Project noise levels for noise-sensitive uses. These levels of increases and

their perceived acceptance are consistent with guidance provided by both the Federal Highway Administration (24 p. 9) and Caltrans (25 p. 2_48).

4.2 VIBRATION (THRESHOLD B)

As described in Section 3.6, the vibration impacts originating from the construction of Village at Junipero, vibration-generating activities are appropriately evaluated using the Caltrans vibration damage thresholds to assess potential temporary construction-related impacts at adjacent building locations. The nearest noise sensitive buildings adjacent to the Project site can best be described as "older residential structures" with a maximum acceptable continuous vibration threshold of 0.3 PPV (in/sec).

4.3 CEQA GUIDELINES NOT FURTHER ANALYZED (THRESHOLD C)

CEQA Noise Threshold C applies when there are nearby public and private airports and/or air strips and focuses on land use compatibility of the Project to nearby airports and airstrips. The Project site is not located within two miles of an airport or airstrip. The closest major airport is the French Valley Airport located roughly 4.1 miles northwest of the Project site. As such, the Project site would not be exposed to excessive noise levels from airport operations, and therefore, impacts are considered *less than significant,* and no further noise analysis is conducted in relation to Appendix G to the CEQA Guidelines, Noise Threshold C.

4.4 SIGNIFICANCE CRITERIA SUMMARY

Noise impacts shall be considered significant if any of the following occur as a direct result of the proposed development. Table 4-1 shows the significance criteria summary matrix that includes the allowable criteria used to identify potentially significant incremental noise level increases.

TABLE 4-1: SIGNIFICANCE CRITERIA SUMMARY

Analysis	Receiving Land Use	Condition(s)	Significance Criteria	
			Daytime	Nighttime
Off-Site	Noise-Sensitive[1]	If ambient is < 60 dBA L_{eq}[1]	≥ 5 dBA L_{eq} Project increase	
		If ambient is 60 - 65 dBA L_{eq}[1]	≥ 3 dBA L_{eq} Project increase	
		If ambient is > 65 dBA L_{eq}[1]	≥ 1.5 dBA L_{eq} Project increase	
	Non-Noise-Sensitive[2]	if ambient is > 70 dBA CNEL	≥ 3 dBA CNEL Project increase	
Operational	Noise-Sensitive[1]	Exterior Noise Level Limit[3]	65 dBA L_{eq}	45 dBA L_{eq}
		If ambient is < 60 dBA L_{eq}[1]	≥ 5 dBA L_{eq} Project increase	
		If ambient is 60 - 65 dBA L_{eq}[1]	≥ 3 dBA L_{eq} Project increase	
		If ambient is > 65 dBA L_{eq}[1]	≥ 1.5 dBA L_{eq} Project increase	
	Non-Noise-Sensitive[2]	If ambient is < 70 dBA CNEL	≥ 5 dBA CNEL Project increase	
		If ambient is > 70 dBA CNEL	≥ 3 dBA CNEL Project increase	
Construction	Noise-Sensitive[1]	Permitted hours of 6:30 a.m. and 7:00 p.m.[4]		
		Noise Level Threshold[5]	80 dBA L_{eq}	n/a
		Vibration Level Threshold[6]	0.30 PPV (in/sec)	

[1] FICON, 1992.
[2] City of Menifee General Plan Noise Element, Table N-b3.
[3] City of Menifee Development Code, Section 9.215.060 (Appendix 3.1).
[4] Section 9.215.060(C) of the City of Menifee Municipal Code (Appendix 3.1).
[5] Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual.
[6] Caltrans Transportation and Construction Vibration Manual, April 2020 Table 19.
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

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5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, 24-hour noise level measurements were taken at four locations in the Project study area. The measurement locations were selected to describe and document the existing noise environment within the Project study area. Exhibit 5-A shows the Project site and the noise level measurement locations. To fully describe the existing noise conditions, noise level measurements were collected by Urban Crossroads, Inc. on Friday, July 15, 2022. Appendix 5.1 includes study area photos.

5.1 MEASUREMENT PROCEDURE AND CRITERIA

To describe the existing noise environment, the hourly noise levels were measured during typical weekday conditions over a 24-hour period. By collecting individual hourly noise level measurements, it is possible to describe the daytime and nighttime hourly noise levels and calculate the 24-hour CNEL. The long-term noise readings were recorded using Piccolo Type 2 integrating sound level meter and dataloggers. The Piccolo sound level meters were calibrated using a Larson-Davis calibrator, Model CAL 150. All noise meters were programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (26)

5.2 NOISE MEASUREMENT LOCATIONS

The long-term noise level measurements were positioned as close to the nearest sensitive receiver locations as possible to assess the existing ambient hourly noise levels surrounding the Project site. Both Caltrans and the FTA recognize that it is not reasonable to collect noise level measurements that can fully represent every part of a private yard, patio, deck, or balcony normally used for human activity when estimating impacts for new development projects. This is demonstrated in the Caltrans general site location guidelines which indicate that, *sites must be free of noise contamination by sources other than sources of interest. Avoid sites located near sources such as barking dogs, lawnmowers, pool pumps, and air conditioners unless it is the express intent of the analyst to measure these sources*. (7) Further, FTA guidance states, t*hat it is not necessary nor recommended that existing noise exposure be determined by measuring at every noise-sensitive location in the project area. Rather, the recommended approach is to characterize the noise environment for clusters of sites based on measurements or estimates at representative locations in the community*. (19)

Based on recommendations of Caltrans and the FTA, it is not necessary to collect measurements at each individual building or residence, because each receiver measurement represents a group of buildings that share acoustical equivalence. (19) In other words, the area represented by the receiver shares similar shielding, terrain, and geometric relationship to the reference noise source. Receivers represent a location of noise sensitive areas and are used to estimate the future noise level impacts. Collecting reference ambient noise level measurements at the nearby sensitive receiver locations allows for a comparison of the before and after Project noise levels

EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS



LEGEND:

▲ Measurement Locations

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS

and is necessary to assess potential noise impacts due to the Project's contribution to the ambient noise levels.

5.3 NOISE MEASUREMENT RESULTS

The noise measurements presented below focus on the average or equivalent sound levels (L_{eq}). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. Table 5-1 identifies the hourly daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) noise levels at each noise level measurement location. Appendix 5.2 provides a summary of the existing hourly ambient noise levels.

TABLE 5-1: 24-HOUR AMBIENT NOISE LEVEL MEASUREMENTS

Location[1]	Description	Energy Average Noise Level (dBA L_{eq})[2]	
		Daytime	Nighttime
L1	Located north of the Project site along Heritage Lake Drive near single-family residence at 27151 Settlement Street.	50.2	45.2
L2	Located east of the Project site along Menifee Road near single-family residence at 27299 Stonehurst Road.	57.0	54.9
L3	Located west of the Project site along Junipero Road near Boulder Ridge Elementary School	58.7	47.4
L4	Located west of the Project site along Junipero Road near single-family residence at 27250 Buckaroo Circle.	57.6	50.1

[1] See Exhibit 5-A for the noise level measurement locations.
[2] Energy (logarithmic) average levels. The long-term 24-hour measurement worksheets are included in Appendix 5.2.
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

Table 5-1 provides the (energy average) noise levels used to describe the daytime and nighttime ambient conditions. These daytime and nighttime energy average noise levels represent the average of all hourly noise levels observed during these time periods expressed as a single number. Appendix 5.2 provides summary worksheets of the noise levels for each hour as well as the minimum, maximum, L_1, L_2, L_5, L_8, L_{25}, L_{50}, L_{90}, L_{95}, and L_{99} percentile noise levels observed during the daytime and nighttime periods. The background ambient noise levels in the Project study area are dominated by the transportation-related noise associated with nearby surface streets. This includes the auto and heavy truck activities on study area roadway segments near the noise level measurement locations.

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6 METHODS AND PROCEDURES

The following section outlines the methods and procedures used to estimate and analyze the future traffic noise environment. Consistent with the City of Menifee General Plan Policies for Land Use, all transportation related noise levels are presented in terms of the 24-hour CNEL's.

6.1 FHWA TRAFFIC NOISE PREDICTION MODEL

The estimated roadway noise impacts from vehicular traffic were calculated using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model- FHWA-RD-77-108. (27) The FHWA Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). In California the national REMELs are substituted with the California Vehicle Noise (Calveno) Emission Levels. (28) Adjustments are then made to the REMEL to account for: the roadway classification (e.g., collector, secondary, major or arterial), the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT), the travel speed, the percentages of automobiles, medium trucks, and heavy trucks in the traffic volume, the roadway grade, the angle of view (e.g., whether the roadway view is blocked), the site conditions ("hard" or "soft" relates to the absorption of the ground, pavement, or landscaping), and the percentage of total ADT which flows each hour throughout a 24-hour period.

6.2 ON-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

The on-site roadway parameters including the average daily traffic (ADT) volumes used for this study are presented on Table 6-1. Based on the City of Menifee General Plan Circulation Element Map, Menifee Road is classified as a four (4) lane Arterial, Junipero Road, and Heritage Lake Drive are classified as two (2) lane Collectors. The maximum two-way traffic volumes at a level of service C, shown on Table 4-1, and reflect future long-range traffic conditions needed to assess the on-site traffic noise environment and to identify the appropriate noise mitigation measures that address the worst-case future noise conditions. Consistent with the County of Riverside Office of Industrial Hygiene noise study requirements, (29) hard site conditions were used to analyze the potential on-site traffic noise impacts for the Project study area. Hard site conditions account for the sound propagation loss over a reflective surface between the source and the receiver.

Tables 6-2 and 6-3 present the time-of-day vehicle splits by vehicle type and roadway classification, and Table 6-4 presents the total traffic flow distributions (vehicle mixes) used for this analysis which were obtained from the County of Riverside Office of Industrial Hygiene noise study requirements. The vehicle mix provides the hourly distribution percentages of automobile, medium trucks, and heavy trucks for input into the FHWA Model based on roadway types. The vehicle splits shown on Table 6-2 are reported as a percentage of the overall percentage.

TABLE 6-1: ON-SITE ROADWAY PARAMETERS

Roadway	Lanes	Classification[1]	Design Capacity (ADT)[2]	Speeds (MPH)[3]	Site Conditions
Menifee Road	4	Arterial	28,000	55	Hard
Heritage Lake Drive	2	Collector	14,000	35	Hard
Junipero Road	2	Collector	14,000	25	Hard

[1] City of Menifee General Plan Circulation Element.
[2] LOS C design capacity traffic volumes.
[3] Speed Limits

TABLE 6-2: TIME OF DAY VEHICLE SPLITS

Vehicle Type	Time of Day Splits[1]			Total of Time of Day Splits
	Daytime	Evening	Nighttime	
Autos	77.50%	12.90%	9.60%	100.00%
Medium Trucks	84.80%	4.90%	10.30%	100.00%
Heavy Trucks	86.50%	2.70%	10.80%	100.00%

[1] Typical Southern California vehicle mix.
"Daytime" = 7:00 a.m. to 7:00 p.m.; "Evening" = 7:00 p.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

TABLE 6-3: DISTRIBUTION OF TRAFFIC FLOW BY VEHICLE TYPE (VEHICLE MIX)

Roadway	Total % Traffic Flow			Total
	Autos	Medium Trucks	Heavy Trucks	
(Secondary, Collector)	97.42%	1.84%	0.74%	100.00%

[1] Source: Typical Southern California vehicle mix.

To predict the future noise environment at each lot within the Project site, coordinate information was collected to identify the noise transmission path between the noise source and receiver. The coordinate information is based on the Project site plan showing the location of each building and common outdoor activity area, as shown in Exhibit 1-B. The site plan is used to identify the relationship between the roadway centerline elevation, the pad elevation and the centerline distance to the noise barrier, and the building façade. The first-floor exterior noise level receivers were placed five feet above the pad elevation, or three feet above the pad elevation when the barrier height exceeds six feet per City of Menifee Office of Industrial Hygiene noise study guidelines. Second-floor receivers were placed 14 feet above the pad elevation.

6.3 OFF-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

Table 6-4 identifies the nine off-site study area roadway segments, the distance from the centerline to adjacent land use based on the functional roadway classifications per the City of Menifee General Plan Circulation Element, and the posted vehicle speeds. Consistent with the

Junipero Village Traffic Impact Analysis prepared by Urban Crossroads for the Project. (5) The off-site traffic noise analysis includes the following traffic scenarios.

- Existing Conditions
- Existing Plus Project Conditions
- Opening Year
- Opening Year Cumulative Plus Project Conditions

The average daily traffic (ADT) volumes used for this study are presented on Table 6-5. Table 6-2 provides the time of day (daytime, evening, and nighttime) vehicle splits used for calculating CNEL values.

TABLE 6-4: OFF-SITE ROADWAY PARAMETERS

ID	Roadway	Segment	Receiving Land Use[1]	Classification[2]	Centerline Distance to Receiving Land Use (Feet)[3]	Vehicle Speed (mph)
1	McCall Blvd.	w/o I-215SB Off Ramp	Non-sensitive	Major	59'	35
2	McCall Blvd.	e/o I-215NB Off Ramp	Non-sensitive	Urban Arterial	64'	50
3	McCall Blvd.	e/o Encanto Dr.	Non-sensitive	Urban Arterial	64'	50
4	McCall Blvd.	e/o Sherman Rd.	Sensitive	Urban Arterial	64'	50
5	McCall Blvd.	e/o Hillpointe Dr.	Sensitive	Urban Arterial	64'	50
6	McCall Blvd.	e/o Antelope Rd.	Sensitive	Urban Arterial	64'	50
7	McCall Blvd.	e/o Oak Hurst Ave.	Sensitive	Urban Arterial	64'	50
8	McCall Blvd.	e/o Junipero Rd.	Sensitive	Urban Arterial	64'	50
9	McCall Blvd.	e/o Menifee Rd.	Sensitive	Urban Arterial	64'	40
10	Heritage Lake Dr.	e/o Junipero Rd.	Sensitive	Collector	37'	35
11	Heritage Lake Dr.	e/o Driveway 1	Sensitive	Collector	37'	35
12	Heritage Lake Dr.	e/o Menifee Rd.	Sensitive	Collector	37'	35
13	Menifee Rd.	s/o McCall Blvd.	Sensitive	Arterial	64'	55
14	Menifee Rd.	n/o McCall Blvd.	Sensitive	Arterial	64'	55
15	Menifee Rd.	n/o Driveway 2	Sensitive	Arterial	64'	55
16	Menifee Rd.	n/o Heritage Lake Dr.	Sensitive	Arterial	64'	55
17	Junipero Rd.	n/o McCall Blvd.	Sensitive	Collector	37'	25
18	Junipero Rd.	n/o Heritage Lake Dr.	Sensitive	Collector	37'	25
19	Sherman Rd.	n/o McCall Blvd.	Sensitive	Collector	37'	25

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] City of Menifee General Plan, County of Riverside General Plan, Southwest Area Plan, and Harvest Valley-Winchester Area Plan Circulation Elements.
[3] Based upon the right-of-way distances for each roadway classification provided in the City of Menifee General Plan, County of Riverside General Plan, Southwest Area Plan, and Harvest Valley-Winchester Area Plan Circulation Elements.

TABLE 6-5: AVERAGE DAILY TRAFFIC VOLUMES

ID	Roadway	Segment	Existing		Opening Year	
			Without Project	With Project	Without Project	Cumulative With Project
1	McCall Blvd.	w/o I-215SB Off Ramp	37,796	38,240	49,415	49,859
2	McCall Blvd.	e/o I-215NB Off Ramp	37,796	38,241	49,416	49,861
3	McCall Blvd.	e/o Encanto Dr.	30,594	31,404	44,191	45,001
4	McCall Blvd.	e/o Sherman Rd.	29,070	29,880	41,146	41,956
5	McCall Blvd.	e/o Hillpointe Dr.	28,814	29,704	39,580	40,470
6	McCall Blvd.	e/o Antelope Rd.	25,490	26,380	36,052	36,942
7	McCall Blvd.	e/o Oak Hurst Ave.	22,566	23,456	31,687	32,577
8	McCall Blvd.	e/o Junipero Rd.	17,523	18,413	25,977	26,867
9	McCall Blvd.	e/o Menifee Rd.	21,031	21,193	29,247	29,589
10	Heritage Lake Dr.	e/o Junipero Rd.	431	1,240	458	1,267
11	Heritage Lake Dr.	e/o Driveway 1	744	1,148	790	1,194
12	Heritage Lake Dr.	e/o Menifee Rd.	3,931	4,011	4,172	4,252
13	Menifee Rd.	s/o McCall Blvd.	15,054	15,216	22,642	22,804
14	Menifee Rd.	n/o McCall Blvd.	12,634	13,038	18,638	19,042
15	Menifee Rd.	n/o Driveway 2	12,634	12,876	18,636	18,878
16	Menifee Rd.	n/o Heritage Lake Dr.	12,634	12,755	18,636	18,757
17	Junipero Rd.	n/o McCall Blvd.	1,904	2,632	2,294	3,022
18	Junipero Rd.	n/o Heritage Lake Dr.	831	1,640	1,209	2,018
19	Sherman Rd.	n/o McCall Blvd.	1,758	1,838	4,866	4,946

[1] Village Junipero Traffic Impact Analysis, Urban Crossroads, Inc.

7 ON-SITE TRAFFIC NOISE IMPACTS

This on-site exterior noise impact analysis has been completed to determine the traffic noise exposure and to identify potential necessary noise abatement measures for the Project. The primary source of noise impacts to the Project site will be traffic noise from Menifee Road, Heritage Lake Drive, and Junipero Road. The Project will also experience some background traffic noise from the Project's internal local streets, however, due to low traffic volume/speed, traffic noise from these roads will not make a significant contribution to the noise environment.

7.1 ON-SITE EXTERIOR NOISE ANALYSIS

Using the FHWA traffic noise prediction model and the parameters outlined in Tables 6-1 to 6-3, the expected future exterior noise levels for individual buildings and common outdoor activity areas were calculated. Table 7-1 presents a summary of future exterior noise levels in the outdoor living areas within the Project site. The on-site traffic noise level impacts indicate that the outdoor living areas adjacent to Menifee Road, Heritage Lake Drive, and Junipero Road will experience unshielded exterior noise levels ranging from 58.9 to 72.7 dBA CNEL. The on-site traffic noise analysis calculations are provided in Appendix 7.1.

The Project, as designed, will satisfy the City of Menifee exterior noise level standards for multi-family residential land uses with construction the proposed 6-foot-high noise along Menifee Road, as shown on the Project Site plans. Thus, with the proposed noise barrier shown on Exhibit ES-A, the future exterior noise levels at the common outdoor activity areas will range from 58.9 to 68.3 dBA CNEL. This noise analysis shows that the recommended noise barrier will satisfy the City of Menifee 70 dBA CNEL exterior noise level standards for multi-family residential land uses.

TABLE 7-1: EXTERIOR NOISE LEVELS (CNEL)

Phase	Roadway	Unmitigated Noise Level (dBA CNEL)	Mitigated Noise Level (dBA CNEL)	Barrier Height (Feet)
Bldg. 2	Heritage Lake Drive	68.3	68.3	0.0
Bldg. 1, 3, 17-19, 23, 24	Heritage Lake Drive	65.3	65.3	0.0
Bldg. 17	Menifee Road	72.7	66.5	6.0
Bldg. 14-16	Menifee Road	71.9	66.5	6.0
Bldg. 1	Junipero Road	64.5	64.5	0.0
Bldg. 5-7	Junipero Road	60.7	60.7	0.0
Tot Lot	Heritage Lake Drive	63.2	63.2	0.0
Pool Area	Menifee Road	65.1	59.1	6.0
Outdoor Amenities	Junipero Road	58.9	58.9	0.0

[1] Exterior on-site traffic noise level calculations are included in Appendix 7.1.
[2] Based on the General Plan land use compatibility guidelines as shown on Exhibit 3-A.

7.2 ON-SITE INTERIOR NOISE ANALYSIS

The future noise levels were calculated at the first -floor building façades to ensure that the interior noise levels comply with the City of Menifee 45 dBA CNEL interior noise standards.

7.2.1 NOISE REDUCTION METHODOLOGY

The interior noise level is the difference between the predicted exterior noise level at the building façade and the noise reduction of the structure. Typical building construction will provide a Noise Reduction (NR) of approximately 12 dBA with "windows open" and a minimum 25 dBA noise reduction with "windows closed." (2) (3) However, sound leaks, cracks and openings within the window assembly can greatly diminish its effectiveness in reducing noise. Several methods are used to improve interior noise reduction, including: [1] weather-stripped solid core exterior doors; [2] upgraded dual glazed windows; [3] mechanical ventilation/air conditioning; and [4] exterior wall/roof assembles free of cut outs or openings.

7.2.2 INTERIOR NOISE LEVEL ASSESSMENT

Tables 7-2 to 7-3 shows that the residential buildings facing Menifee Road, Heritage Lake Drive, and Junipero Road will experience future unshielded noise levels ranging from 60.4 to 68.1 dBA CNEL at the first-floor building façades and 60.4 to 72.4 dBA CNEL at the second-floor building façades. The interior noise level analysis shows that the City of Menifee 45 dBA CNEL with a windows closed condition requiring a means of mechanical ventilation (e.g. air conditioning) interior noise standards can be satisfied using standard construction for all first-and second-floor building facades adjacent to Heritage Lake Drive and Junipero Road, and first-floor building facades adjacent to Menifee Road Second-floor building facades (Buildings 14 through 17) adjacent to Menifee Road would require a windows closed condition requiring a means of mechanical ventilation (e.g. air conditioning) using windows with a minimum STC rating of 28 to

satisfy City of Menifee interior noise standards. The interior noise analysis shows that with the recommended interior noise abatement measures for first- and second-floor facades adjacent to Menifee Road described in the Executive Summary, the Project will satisfy the City of Menifee 45 dBA CNEL noise level standards for residential development.

TABLE 7-2: FIRST FLOOR INTERIOR NOISE IMPACTS (CNEL)

Location	Noise Level at Façade[2]	Required Interior Noise Reduction[3]	Estimated Interior Noise Reduction[4]	Upgraded Windows[5]	Interior Noise Level[6]	Threshold[7]	Threshold Exceeded?
Bldg. 2	68.1	23.1	25.0	No	43.1	45	No
Bldg. 1, 3, 17-19, 23, 24	65.2	20.2	25.0	No	40.2	45	No
Bldg. 17	66.2	21.2	25.0	No	41.2	45	No
Bldg. 14-16	66.1	21.1	25.0	No	41.1	45	No
Bldg. 1	64.3	19.3	25.0	No	39.3	45	No
Bldg. 5-7	60.4	15.4	25.0	No	35.4	45	No

[1] Project site plan is shown on Exhibit 1-B.
[2] Exterior noise level at the facade with a windows closed condition requiring a means of mechanical ventilation (e.g. air conditioning). See Appendix 7.1.
[3] Noise reduction to satisfy the interior noise level threshold.
[4] A minimum of 25 dBA noise reduction is assumed with standard building construction and approximately 2 dBA less than the STC rating for upgraded windows.
[5] Does the required interior noise reduction trigger upgraded windows with a minimum STC rating of greater than 27?
[6] Estimated interior noise level with minimum STC rating for all windows.
[7] Interior noise level threshold: 45 dBA CNEL for residential use (California Code of Regulations, Title 24, Building Standards Administrative Code).

TABLE 7-3: SECOND FLOOR INTERIOR NOISE IMPACTS (CNEL)

Building	Noise Level at Façade[2]	Required Interior Noise Reduction[3]	Estimated Interior Noise Reduction[4]	Upgraded Windows[5]	Interior Noise Level[6]	Threshold[7]	Threshold Exceeded?
Bldg. 2	67.8	22.8	25.0	No	42.8	45	No
Bldg. 1, 3, 17-19, 23, 24	65.1	20.1	25.0	No	40.1	45	No
Bldg. 17	72.4	27.4	25.0	Yes	47.4	45	Yes
Bldg. 14-16	71.6	26.6	25.0	Yes	46.6	45	Yes
Bldg. 1	64.2	19.2	25.0	No	39.2	45	No
Bldg. 5-7	60.4	15.4	25.0	No	35.4	45	No

[1] Project site plan is shown on Exhibit 1-B.
[2] Exterior noise level at the facade with a windows closed condition requiring a means of mechanical ventilation (e.g. air conditioning). See Appendix 7.1.
[3] Noise reduction to satisfy the interior noise level threshold.
[4] A minimum of 25 dBA noise reduction is assumed with standard building construction and approximately 2 dBA less than the STC rating for upgraded windows.
[5] Does the required interior noise reduction trigger upgraded windows with a minimum STC rating of greater than 27?
[6] Estimated interior noise level with minimum STC rating for all windows.
[7] Interior noise level threshold: 45 dBA CNEL for residential use (California Code of Regulations, Title 24, Building Standards Administrative Code).

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8 OFF-SITE TRANSPORTATION NOISE IMPACTS

To assess the off-site transportation CNEL noise level impacts associated with the proposed Project, noise level contours were developed based on the *Village at Junipero Traffic Impact Analysis*. (5) Noise level contour boundaries represent the equal levels of noise exposure and are measured in CNEL from the center of the roadway. Noise level contours were developed for the following traffic scenarios:

- Existing Conditions Without Project: This scenario refers to the existing present-day noise conditions without the proposed Project.
    - Existing plus Project Conditions – Project Buildout: This scenario refers to the existing present-day noise conditions with the proposed Project.
- Opening Year Cumulative Conditions Without Project: This scenario refers to cumulative near-term noise conditions without the proposed Project.
    - Opening Year Cumulative Plus Project Conditions: This scenario includes all cumulative projects identified in the *Traffic Impact Analysis*.

8.1 TRAFFIC NOISE LEVEL CONTOURS

Noise level contours were used to assess the Project's incremental 24-hour dBA CNEL traffic-related noise impacts at land uses adjacent to roadways conveying Project traffic. The noise level contours represent the distance to noise levels of a constant value and are measured from the center of the roadway for the 70, 65, and 60 dBA CNEL noise levels. The noise level contours do not consider the effect of any existing noise barriers or topography that may attenuate ambient noise levels. In addition, because the noise level contours reflect modeling of vehicular noise on area roadways, they appropriately do not reflect noise contributions from the surrounding stationary noise sources within the Project study area.

Tables 8-1 through 8-4 present a summary of the exterior dBA CNEL traffic noise levels. Roadway segments are analyzed in each of the following timeframes: Existing without and with Project conditions, Cumulative 2025 without and with Project conditions. Appendix 8.1 includes a summary of the dBA CNEL traffic noise level contours for each of the traffic scenarios.

TABLE 8-1: EXISTING WITHOUT PROJECT NOISE LEVEL CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Nearest Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	McCall Blvd.	w/o I-215SB Off Ramp	Non-sensitive	71.3	RW	155	333
2	McCall Blvd.	e/o I-215NB Off Ramp	Non-sensitive	74.4	RW	272	586
3	McCall Blvd.	e/o Encanto Dr.	Non-sensitive	73.5	RW	236	509
4	McCall Blvd.	e/o Sherman Rd.	Sensitive	73.3	RW	228	492
5	McCall Blvd.	e/o Hillpointe Dr.	Sensitive	73.2	RW	227	489
6	McCall Blvd.	e/o Antelope Rd.	Sensitive	72.7	RW	209	451
7	McCall Blvd.	e/o Oak Hurst Ave.	Sensitive	72.2	RW	193	415
8	McCall Blvd.	e/o Junipero Rd.	Sensitive	71.1	RW	163	351
9	McCall Blvd.	e/o Menifee Rd.	Sensitive	69.7	RW	131	282
10	Heritage Lake Dr.	e/o Junipero Rd.	Sensitive	54.4	RW	RW	RW
11	Heritage Lake Dr.	e/o Driveway 1	Sensitive	56.7	RW	RW	RW
12	Heritage Lake Dr.	e/o Menifee Rd.	Sensitive	64.0	RW	RW	RW
13	Menifee Rd.	s/o McCall Blvd.	Sensitive	71.4	RW	171	368
14	Menifee Rd.	n/o McCall Blvd.	Sensitive	70.6	RW	152	327
15	Menifee Rd.	n/o Driveway 2	Sensitive	70.6	RW	152	327
16	Menifee Rd.	n/o Heritage Lake Dr.	Sensitive	70.6	RW	152	327
17	Junipero Rd.	n/o McCall Blvd.	Sensitive	57.7	RW	RW	RW
18	Junipero Rd.	n/o Heritage Lake Dr.	Sensitive	54.1	RW	RW	RW
19	Sherman Rd.	n/o McCall Blvd.	Sensitive	57.3	RW	RW	RW

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise level contour falls within the right-of-way of the road.

TABLE 8-2: EXISTING WITH PROJECT NOISE LEVEL CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Nearest Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	McCall Blvd.	w/o I-215SB Off Ramp	Non-sensitive	71.3	RW	156	336
2	McCall Blvd.	e/o I-215NB Off Ramp	Non-sensitive	74.5	RW	274	590
3	McCall Blvd.	e/o Encanto Dr.	Non-sensitive	73.6	RW	240	518
4	McCall Blvd.	e/o Sherman Rd.	Sensitive	73.4	RW	233	501
5	McCall Blvd.	e/o Hillpointe Dr.	Sensitive	73.4	RW	232	499
6	McCall Blvd.	e/o Antelope Rd.	Sensitive	72.9	RW	214	461
7	McCall Blvd.	e/o Oak Hurst Ave.	Sensitive	72.4	RW	198	426
8	McCall Blvd.	e/o Junipero Rd.	Sensitive	71.3	RW	168	363
9	McCall Blvd.	e/o Menifee Rd.	Sensitive	69.7	RW	132	283
10	Heritage Lake Dr.	e/o Junipero Rd.	Sensitive	59.0	RW	RW	RW
11	Heritage Lake Dr.	e/o Driveway 1	Sensitive	58.6	RW	RW	RW
12	Heritage Lake Dr.	e/o Menifee Rd.	Sensitive	64.1	RW	RW	RW
13	Menifee Rd.	s/o McCall Blvd.	Sensitive	71.4	RW	172	371
14	Menifee Rd.	n/o McCall Blvd.	Sensitive	70.8	RW	155	334
15	Menifee Rd.	n/o Driveway 2	Sensitive	70.7	RW	154	332
16	Menifee Rd.	n/o Heritage Lake Dr.	Sensitive	70.7	RW	153	330
17	Junipero Rd.	n/o McCall Blvd.	Sensitive	59.1	RW	RW	RW
18	Junipero Rd.	n/o Heritage Lake Dr.	Sensitive	57.0	RW	RW	RW
19	Sherman Rd.	n/o McCall Blvd.	Sensitive	57.5	RW	RW	RW

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise level contour falls within the right-of-way of the road.

TABLE 8-3: OPENING YEAR CUMULATIVE WITHOUT PROJECT NOISE LEVEL CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Nearest Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	McCall Blvd.	w/o I-215SB Off Ramp	Non-sensitive	72.4	RW	185	399
2	McCall Blvd.	e/o I-215NB Off Ramp	Non-sensitive	75.6	151	325	701
3	McCall Blvd.	e/o Encanto Dr.	Non-sensitive	75.1	140	302	650
4	McCall Blvd.	e/o Sherman Rd.	Sensitive	74.8	134	288	620
5	McCall Blvd.	e/o Hillpointe Dr.	Sensitive	74.6	130	280	604
6	McCall Blvd.	e/o Antelope Rd.	Sensitive	74.2	RW	264	568
7	McCall Blvd.	e/o Oak Hurst Ave.	Sensitive	73.7	RW	242	521
8	McCall Blvd.	e/o Junipero Rd.	Sensitive	72.8	RW	212	456
9	McCall Blvd.	e/o Menifee Rd.	Sensitive	71.1	RW	163	351
10	Heritage Lake Dr.	e/o Junipero Rd.	Sensitive	54.6	RW	RW	RW
11	Heritage Lake Dr.	e/o Driveway 1	Sensitive	57.0	RW	RW	RW
12	Heritage Lake Dr.	e/o Menifee Rd.	Sensitive	64.2	RW	RW	RW
13	Menifee Rd.	s/o McCall Blvd.	Sensitive	73.2	RW	224	483
14	Menifee Rd.	n/o McCall Blvd.	Sensitive	72.3	RW	197	424
15	Menifee Rd.	n/o Driveway 2	Sensitive	72.3	RW	197	424
16	Menifee Rd.	n/o Heritage Lake Dr.	Sensitive	72.3	RW	197	424
17	Junipero Rd.	n/o McCall Blvd.	Sensitive	58.5	RW	RW	RW
18	Junipero Rd.	n/o Heritage Lake Dr.	Sensitive	55.7	RW	RW	RW
19	Sherman Rd.	n/o McCall Blvd.	Sensitive	61.8	RW	RW	RW

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise level contour falls within the right-of-way of the road.

TABLE 8-4: OPENING YEAR CUMULATIVE WITH PROJECT NOISE LEVEL CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Nearest Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	McCall Blvd.	w/o I-215SB Off Ramp	Non-Sensitive	72.5	RW	186	401
2	McCall Blvd.	e/o I-215NB Off Ramp	Non-Sensitive	75.6	152	327	705
3	McCall Blvd.	e/o Encanto Dr.	Non-Sensitive	75.2	142	305	658
4	McCall Blvd.	e/o Sherman Rd.	Sensitive	74.9	135	292	628
5	McCall Blvd.	e/o Hillpointe Dr.	Sensitive	74.7	132	285	613
6	McCall Blvd.	e/o Antelope Rd.	Sensitive	74.3	RW	268	577
7	McCall Blvd.	e/o Oak Hurst Ave.	Sensitive	73.8	RW	246	531
8	McCall Blvd.	e/o Junipero Rd.	Sensitive	72.9	RW	217	467
9	McCall Blvd.	e/o Menifee Rd.	Sensitive	71.1	RW	164	354
10	Heritage Lake Dr.	e/o Junipero Rd.	Sensitive	59.1	RW	RW	RW
11	Heritage Lake Dr.	e/o Driveway 1	Sensitive	58.8	RW	RW	RW
12	Heritage Lake Dr.	e/o Menifee Rd.	Sensitive	64.3	RW	RW	RW
13	Menifee Rd.	s/o McCall Blvd.	Sensitive	73.2	RW	225	485
14	Menifee Rd.	n/o McCall Blvd.	Sensitive	72.4	RW	200	430
15	Menifee Rd.	n/o Driveway 2	Sensitive	72.4	RW	199	428
16	Menifee Rd.	n/o Heritage Lake Dr.	Sensitive	72.4	RW	198	426
17	Junipero Rd.	n/o McCall Blvd.	Sensitive	59.7	RW	RW	RW
18	Junipero Rd.	n/o Heritage Lake Dr.	Sensitive	57.9	RW	RW	RW
19	Sherman Rd.	n/o McCall Blvd.	Sensitive	61.8	RW	RW	RW

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise level contour falls within the right-of-way of the road.

8.2 EXISTING PROJECT TRAFFIC NOISE LEVELS

Table 8-1 shows the Existing without Project conditions CNEL noise levels. The Existing without Project exterior noise levels are expected to range from 54.1 to 74.4 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 8-2 shows the Existing plus Project conditions will range from 57.0 to 74.5 dBA CNEL. Table 8-5 shows that the Project off-site traffic noise level increases will range from 0.0 to 4.6 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Section 4.2, land uses adjacent to the study area roadway segments would experience *less than significant* noise level increases due to unmitigated Project-related traffic noise levels.

8.3 OPENING YEAR CUMULATIVE TRAFFIC NOISE LEVEL INCREASES

Table 8-3 presents the Opening Year Cumulative without Project conditions CNEL noise levels. The Opening Year Cumulative without Project exterior noise levels are expected to range from 54.6 to 75.6 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 8-4 shows the Opening Year Cumulative with Project conditions will range from 57.9 to 75.6 dBA CNEL. Table 8-6 shows that the Project off-site traffic noise level increases will range from 0.0 to 4.5 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Section 4.2, land uses adjacent to the study area roadway segments would experience *less than significant* noise level increases due to unmitigated Project-related traffic noise levels.

8.4 CUMULATIVE TRAFFIC NOISE LEVEL INCREASES

Table 8-7 shows that the Project off-site contribution to cumulative traffic noise level increases range from 0.0 to 4.5 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Section 4.2, land uses adjacent to the study area roadway segments would experience substantial noise level increases due to Project-related traffic noise level increases and would be considered a *less than significant impact*.

TABLE 8-5: EXISTING WITH PROJECT TRAFFIC NOISE INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Addition	Limit	Exceeded?
1	McCall Blvd.	w/o I-215SB Off Ramp	Non-sensitive	71.3	71.3	0.0	1.5	No
2	McCall Blvd.	e/o I-215NB Off Ramp	Non-sensitive	74.4	74.5	0.1	1.5	No
3	McCall Blvd.	e/o Encanto Dr.	Non-sensitive	73.5	73.6	0.1	1.5	No
4	McCall Blvd.	e/o Sherman Rd.	Sensitive	73.3	73.4	0.1	1.5	No
5	McCall Blvd.	e/o Hillpointe Dr.	Sensitive	73.2	73.4	0.2	1.5	No
6	McCall Blvd.	e/o Antelope Rd.	Sensitive	72.7	72.9	0.2	1.5	No
7	McCall Blvd.	e/o Oak Hurst Ave.	Sensitive	72.2	72.4	0.2	1.5	No
8	McCall Blvd.	e/o Junipero Rd.	Sensitive	71.1	71.3	0.2	1.5	No
9	McCall Blvd.	e/o Menifee Rd.	Sensitive	69.7	69.7	0.0	1.5	No
10	Heritage Lake Dr.	e/o Junipero Rd.	Sensitive	54.4	59.0	4.6	5.0	No
11	Heritage Lake Dr.	e/o Driveway 1	Sensitive	56.7	58.6	1.9	5.0	No
12	Heritage Lake Dr.	e/o Menifee Rd.	Sensitive	64.0	64.1	0.1	3.0	No
13	Menifee Rd.	s/o McCall Blvd.	Sensitive	71.4	71.4	0.0	1.5	No
14	Menifee Rd.	n/o McCall Blvd.	Sensitive	70.6	70.8	0.2	1.5	No
15	Menifee Rd.	n/o Driveway 2	Sensitive	70.6	70.7	0.1	1.5	No
16	Menifee Rd.	n/o Heritage Lake Dr.	Sensitive	70.6	70.7	0.1	1.5	No
17	Junipero Rd.	n/o McCall Blvd.	Sensitive	57.7	59.1	1.4	5.0	No
18	Junipero Rd.	n/o Heritage Lake Dr.	Sensitive	54.1	57.0	2.9	5.0	No
19	Sherman Rd.	n/o McCall Blvd.	Sensitive	57.3	57.5	0.2	5.0	No

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?

#

TABLE 8-6: OPENING YEAR CUMULATIVE WITH PROJECT TRAFFIC NOISE INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Addition	Limit	Exceeded?
1	McCall Blvd.	w/o I-215SB Off Ramp	Non-sensitive	72.4	72.5	0.1	1.5	No
2	McCall Blvd.	e/o I-215NB Off Ramp	Non-sensitive	75.6	75.6	0.0	1.5	No
3	McCall Blvd.	e/o Encanto Dr.	Non-sensitive	75.1	75.2	0.1	1.5	No
4	McCall Blvd.	e/o Sherman Rd.	Sensitive	74.8	74.9	0.1	1.5	No
5	McCall Blvd.	e/o Hillpointe Dr.	Sensitive	74.6	74.7	0.1	1.5	No
6	McCall Blvd.	e/o Antelope Rd.	Sensitive	74.2	74.3	0.1	1.5	No
7	McCall Blvd.	e/o Oak Hurst Ave.	Sensitive	73.7	73.8	0.1	1.5	No
8	McCall Blvd.	e/o Junipero Rd.	Sensitive	72.8	72.9	0.1	1.5	No
9	McCall Blvd.	e/o Menifee Rd.	Sensitive	71.1	71.1	0.0	1.5	No
10	Heritage Lake Dr.	e/o Junipero Rd.	Sensitive	54.6	59.1	4.5	5.0	No
11	Heritage Lake Dr.	e/o Driveway 1	Sensitive	57.0	58.8	1.8	5.0	No
12	Heritage Lake Dr.	e/o Menifee Rd.	Sensitive	64.2	64.3	0.1	3.0	No
13	Menifee Rd.	s/o McCall Blvd.	Sensitive	73.2	73.2	0.0	1.5	No
14	Menifee Rd.	n/o McCall Blvd.	Sensitive	72.3	72.4	0.1	1.5	No
15	Menifee Rd.	n/o Driveway 2	Sensitive	72.3	72.4	0.1	1.5	No
16	Menifee Rd.	n/o Heritage Lake Dr.	Sensitive	72.3	72.4	0.1	1.5	No
17	Junipero Rd.	n/o McCall Blvd.	Sensitive	58.5	59.7	1.2	5.0	No
18	Junipero Rd.	n/o Heritage Lake Dr.	Sensitive	55.7	57.9	2.2	5.0	No
19	Sherman Rd.	n/o McCall Blvd.	Sensitive	61.8	61.8	0.0	3.0	No

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?

TABLE 8-7: CUMULATIVE PROJECT TRAFFIC NOISE INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]					Noise-Sensitive Land Use?	Incremental Noise Level Increase Threshold[3]	
				Existing	Opening Year With Project	Opening Year Cumulative with Project	Cumulative Increase	Project Contribution		Limit	Exceeded?
1	McCall Blvd.	w/o I-215SB Off Ramp	Non-sensitive	71.3	72.4	72.5	1.2	0.1	No	3.0	No
2	McCall Blvd.	e/o I-215NB Off Ramp	Non-sensitive	74.4	75.6	75.6	1.2	0.0	No	3.0	No
3	McCall Blvd.	e/o Encanto Dr.	Non-sensitive	73.5	75.1	75.2	1.7	0.1	No	3.0	No
4	McCall Blvd.	e/o Sherman Rd.	Sensitive	73.3	74.8	74.9	1.6	0.1	Yes	1.5	No
5	McCall Blvd.	e/o Hillpointe Dr.	Sensitive	73.2	74.6	74.7	1.5	0.1	Yes	1.5	No
6	McCall Blvd.	e/o Antelope Rd.	Sensitive	72.7	74.2	74.3	1.6	0.1	Yes	1.5	No
7	McCall Blvd.	e/o Oak Hurst Ave.	Sensitive	72.2	73.7	73.8	1.6	0.1	Yes	1.5	No
8	McCall Blvd.	e/o Junipero Rd.	Sensitive	71.1	72.8	72.9	1.8	0.1	Yes	1.5	No
9	McCall Blvd.	e/o Menifee Rd.	Sensitive	69.7	71.1	71.1	1.4	0.0	Yes	1.5	No
10	Heritage Lake Dr.	e/o Junipero Rd.	Sensitive	54.4	54.6	59.1	4.7	4.5	Yes	5.0	No
11	Heritage Lake Dr.	e/o Driveway 1	Sensitive	56.7	57.0	58.8	2.1	1.8	Yes	5.0	No
12	Heritage Lake Dr.	e/o Menifee Rd.	Sensitive	64.0	64.2	64.3	0.3	0.1	Yes	3.0	No
13	Menifee Rd.	s/o McCall Blvd.	Sensitive	71.4	73.2	73.2	1.8	0.0	Yes	1.5	No
14	Menifee Rd.	n/o McCall Blvd.	Sensitive	70.6	72.3	72.4	1.8	0.1	Yes	1.5	No
15	Menifee Rd.	n/o Driveway 2	Sensitive	70.6	72.3	72.4	1.8	0.1	Yes	1.5	No
16	Menifee Rd.	n/o Heritage Lake Dr.	Sensitive	70.6	72.3	72.4	1.8	0.1	Yes	1.5	No
17	Junipero Rd.	n/o McCall Blvd.	Sensitive	57.7	58.5	59.7	2.0	1.2	Yes	5.0	No
18	Junipero Rd.	n/o Heritage Lake Dr.	Sensitive	54.1	55.7	57.9	3.8	2.2	Yes	5.0	No
19	Sherman Rd.	n/o McCall Blvd.	Sensitive	57.3	61.8	61.8	4.5	0.0	Yes	5.0	No

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?

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9 SENSITIVE RECEIVER LOCATIONS

To assess the potential for long-term operational and short-term construction noise impacts, the following sensitive receiver locations, as shown on Exhibit 9-A, were identified as representative locations for analysis. Sensitive receivers are generally defined as locations where people reside or where the presence of unwanted sound could otherwise adversely affect the use of the land. Noise-sensitive land uses are generally considered to include schools, hospitals, single-family dwellings, mobile home parks, churches, libraries, and recreation areas. Moderately noise-sensitive land uses typically include multi-family dwellings, hotels, motels, dormitories, out-patient clinics, cemeteries, golf courses, country clubs, athletic/tennis clubs, and equestrian clubs. Land uses that are considered relatively insensitive to noise include business, commercial, and professional developments. Land uses that are typically not affected by noise include: industrial, manufacturing, utilities, agriculture, undeveloped land, parking lots, warehousing, liquid and solid waste facilities, salvage yards, and transit terminals.

To describe the potential off-site Project noise levels, four receiver locations in the vicinity of the Project site were identified. All distances are measured from the Project site boundary to the outdoor living areas (e.g., private backyards) or at the building façade, whichever is closer to the Project site. The selection of receiver locations is based on FHWA guidelines and is consistent with additional guidance provided by Caltrans and the FTA, as previously described in Section 5.2. Other sensitive land uses in the Project study area that are located at greater distances than those identified in this noise study will experience lower noise levels than those presented in this report due to the additional attenuation from distance and the shielding of intervening structures. Distance is measured in a straight line from the Project boundary to each receiver location.

R1: Location R1 represents existing noise sensitive residence at 27151 Settlement Street, approximately 89 feet north of the Project site. Since there was not access to the private outdoor living area (backyard), receiver R1 is located along Heritage Lake Drive in the public right-of-way. A 24-hour noise measurement was taken near this location, L1, to describe the existing ambient noise environment.

R2: Location R2 represents the existing noise sensitive residence at 27299 Stonehurst Road, approximately 185 feet east of the Project site. Since there was not access to the private outdoor living area (backyard), receiver R2 is located along Menifee Road in the public right-of-way. A 24-hour noise measurement was taken near this location, L2, to describe the existing ambient noise environment.

R3: Location R3 represents the existing noise sensitive school (Boulder Ridge Elementary) at 27327 Junipero Road, approximately 102 feet west of the Project site. Receiver R3 is located adjacent to the school parking lot. A 24-hour noise measurement was taken near this location, L3, to describe the existing ambient noise environment.

R4: Location R4 represents the existing noise sensitive residence at 27250 Buckaroo Circle, approximately 61 feet west of the Project site. Since there was not access to the private outdoor living area (backyard), receiver R4 is located along Junipero Road in the public right-of-way. A 24-hour noise measurement was taken near this location, L4, to describe the existing ambient noise environment.

EXHIBIT 9-A: RECEIVER LOCATIONS



10 OPERATIONAL NOISE IMPACTS

This section analyzes the potential stationary-source operational noise impacts at the nearest receiver locations, identified in Section 9, resulting from the operation of the proposed Village at Junipero Project. Exhibit 10-A identifies the representative noise source locations used to assess the operational noise levels.

10.1 OPERATIONAL NOISE SOURCES

This operational noise analysis is intended to describe noise level impacts associated with the expected typical of daytime and nighttime activities at the Project site. To present the potential worst-case noise conditions, this analysis assumes the Project would be operational 24 hours per day, seven days per week. The on-site Project-related noise sources are expected to include: swimming pool activities, outdoor activity areas, parking lot vehicle movements, air conditioning units, and trash enclosure activities.

POOL/SPA ACTIVITY

To represent the noise levels associated with pool activities, Urban Crossroads collected a reference noise level measurement at the Covenant Hill Clubhouse Pool in the unincorporated community of Ladera Ranch in the County of Orange. The reference noise level at 50 feet is 54.7 dBA L_{eq} for pool activity. The pool activity noise levels include kids playing, running, screaming, splashing, playing with a ball, and parents talking. Pool and Spa activities are estimated to occur for 60 minutes during all the daytime hours, with no nighttime activities.

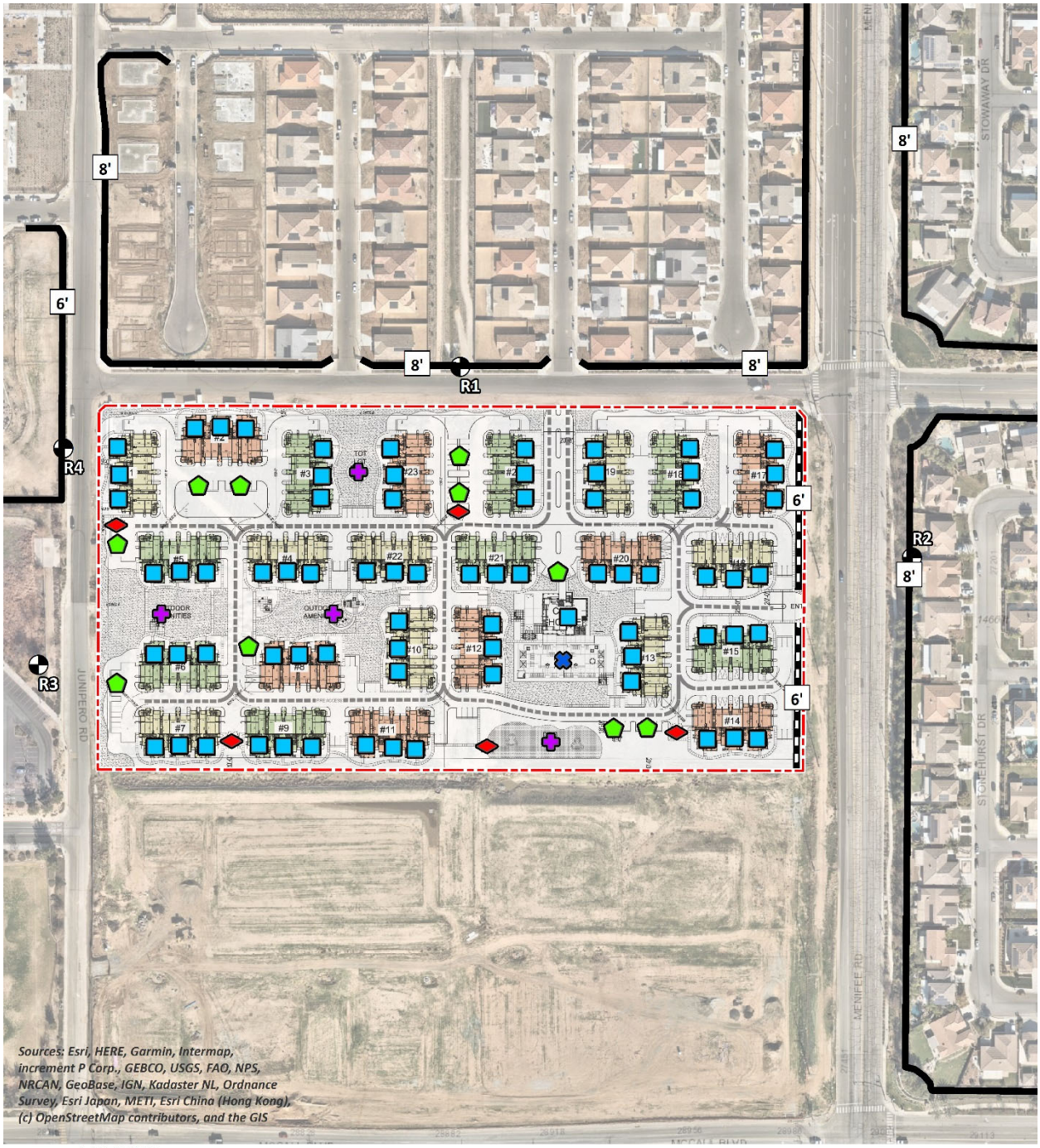
OUTDOOR ACTIVITY AREA

To describe the outdoor common area courtyards activity areas, a reference noise level measurement was taken by Urban Crossroads, Inc. At 50 feet, the reference noise level is 59.8 dBA L_{eq} at a noise source height of 5 feet. The reference noise level measurement includes outdoor eating, drinking, with patrons laughing and talking. Outdoor activities are limited to the daytime hours.

PARKING LOT/GARAGE ACTIVITY

To describe the on-site parking lot activity, a long-term 29-hour reference noise level measurement was collected in the center of activity within the staff parking lot of an Amazon warehouse distribution center. At 50 feet from the center of activity, the parking lot produced a reference noise level of 56.1 dBA L_{eq}. Parking activities are expected to take place during the full hour (60 minutes) throughout the daytime and evening hours. The parking lot noise levels are mainly due cars pulling in and out of parking spaces in combination with car doors opening and closing.

EXHIBIT 9-A: OPERATIONAL NOISE SOURCE LOCATIONS



AIR CONDITIONING UNITS

To assess the noise levels created by the air conditioning units, reference noise levels were taken from equipment specifications for a 3-ton residential packaged air conditioning unit (Carrier 48VGB24). Each air conditioning unit was modeled as operating 45 minutes per hour during the daytime and 30 minutes during the nighttime. For this noise analysis, the air conditioning units are expected to be ground mounted adjacent to the proposed buildings. The air conditioning units are anticipated to be located 3 feet above the ground level. At a uniform reference distance of 50 feet, each unit would generate a reference noise level of 44.4 dBA L_{eq}.

TRASH ENCLOSURE ACTIVITY

To describe the noise levels associated with a trash enclosure activity, Urban Crossroads collected a reference noise level measurement at an existing trash enclosure containing two dumpster bins. The trash enclosure noise levels describe metal gates opening and closing, metal scraping against concrete floor sounds, dumpster movement on metal wheels, trash dropping into the metal dumpster. The reference noise levels describe trash enclosure noise activities when trash is dropped into an empty metal dumpster, as would occur at the Project site. The measured reference noise level at the uniform 50-foot reference distance is 56.8 dBA L_{eq} for the trash enclosure activity. The reference noise level describes the expected noise source activities associated with the trash enclosures for each of the Project buildings. Typical trash enclosure activities are estimated to occur for 5 minutes per hour.

10.2 REFERENCE NOISE LEVELS

To estimate the Project operational noise impacts, reference noise level measurements were collected from manufacturers specification sheets or from similar types of activities to represent the noise levels expected with the development of the proposed Project. This section provides a detailed description of the reference noise level measurements shown on Table 10-1 used to estimate the Project operational noise impacts. It is important to note that the following projected noise levels assume the worst-case noise environment with the swimming pool activities, outdoor activity areas, parking lot vehicle movements, air conditioning units, and trash enclosure activities all operating at the same time. These sources of noise activity will likely vary throughout the day.

10.2.1 MEASUREMENT PROCEDURES

The reference noise level measurements presented in this section were collected using a Larson Davis LxT Type 1 precisions sound level meter (serial number 01146). The LxT sound level meter was calibrated using a Larson-Davis calibrator, Model CAL 200, was programmed in "slow" mode to record noise levels in "A" weighted form and was located at approximately five feet above the ground elevation for each measurement. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (26)

TABLE 10-1: REFERENCE NOISE LEVEL MEASUREMENTS

Noise Source	Noise Source Height (Feet)	Min./Hour[2]		Reference Noise Level (dBA L_{eq})		Sound Power Level (dBA)[3]
		Day	Night	@ Ref. Dist.	@ 50 Feet	
Swimming Pool	8'	60	0	78.4	64.4	111.5
Outdoor Activity	8'	60	0	67.2	62.8	103.4
Parking Lot Vehicle Movements	5'	60	30	66.6	56.1	87.8
Air Conditioning Units[1]	5'	45	30	77.2	44.4	76.0
Trash Enclosure Activity	5'	10	10	72.7	56.8	88.5

[1] Carrier 48VGB24 air conditioning unit, Appendix 10.1.
[2] Anticipated duration (minutes within the hour) of noise activity during typical hourly conditions expected at the Project site.
[3] Sound power level represents the total amount of acoustical energy (noise level) produced by a sound source independent of distance or surroundings. Sound power levels calculated using the CadnaA noise model at the reference distance to the noise source. Numbers may vary due to size differences between point and area noise sources.
"Daytime" = 7:01 a.m. to 10:00 p.m.; "Nighttime" = 10:01 p.m. to 7:00 a.m.

10.3 CADNAA NOISE PREDICTION MODEL

To fully describe the exterior operational noise levels from the Project, Urban Crossroads, Inc. developed a noise prediction model using the CadnaA (Computer Aided Noise Abatement) computer program. CadnaA can analyze multiple types of noise sources using the spatially accurate Project site plan, georeferenced Nearmap aerial imagery, topography, buildings, and barriers in its calculations to predict outdoor noise levels.

Using the ISO 9613 protocol, CadnaA will calculate the distance from each noise source to the noise receiver locations, using the ground absorption, distance, and barrier/building attenuation inputs to provide a summary of noise level at each receiver and the partial noise level contributions by noise source. Consistent with the ISO 9613 protocol, the CadnaA noise prediction model relies on the reference sound power level (L_w) to describe individual noise sources. While sound pressure levels (e.g., L_{eq}) quantify in decibels the intensity of given sound sources at a reference distance, sound power levels (L_w) are connected to the sound source and are independent of distance. Sound pressure levels vary substantially with distance from the source and diminish because of intervening obstacles and barriers, air absorption, wind, and other factors. Sound power is the acoustical energy emitted by the sound source and is an absolute value that is not affected by the environment.

The operational noise level calculations provided in this noise study account for the distance attenuation provided due to geometric spreading, when sound from a localized stationary source (i.e., a point source) propagates uniformly outward in a spherical pattern. A default ground attenuation factor of 0.5 was used in the CadnaA noise analysis to account for mixed ground representing a combination of hard and soft surfaces. Appendix 10.2 includes the detailed noise model inputs used to estimate the Project operational noise levels presented in this section.

10.4 PROJECT OPERATIONAL NOISE LEVELS

Using the reference noise levels to represent the proposed Project operations that include swimming pool activities, outdoor activity areas, parking lot vehicle movements, air conditioning units, and trash enclosure activities, Urban Crossroads, Inc. calculated the operational source noise levels that are expected to be generated at the Project site and the Project-related noise level increases that would be experienced at each of the sensitive receiver locations. Table 10-2 shows the Project operational noise levels during the daytime hours of 7:00 a.m. to 10:00 p.m. The daytime hourly noise levels at the off-site receiver locations are expected to range from 41.5 to 47.1 dBA L_{eq}.

TABLE 10-2: DAYTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA L_{eq})			
	R1	R2	R3	R4
Swimming Pool	37.6	36.2	33.0	32.7
Outdoor Activity	43.2	35.7	43.7	41.5
Parking Lot Vehicle Movements	31.4	22.8	31.6	30.1
Air Conditioning Units1	37.0	33.9	35.1	39.0
Trash Enclosure Activity	40.7	35.7	40.7	44.2
Total (All Noise Sources)	**46.5**	**41.5**	**46.2**	**47.1**

[1] See Exhibit 10-A for the noise source locations. CadnaA noise model calculations are included in Appendix 10.2.

Table 10-3 shows the Project operational noise levels during the nighttime hours of 10:00 p.m. to 7:00 a.m. The nighttime hourly noise levels at the off-site receiver locations are expected to range from 34.5 to 41.8 dBA L_{eq}. The differences between the daytime and nighttime noise levels are largely related to the duration of noise activity (Table 10-1).

TABLE 10-3: NIGHTTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA L_{eq})			
	R1	R2	R3	R4
Swimming Pool	0.0	0.0	0.0	0.0
Outdoor Activity	0.0	0.0	0.0	0.0
Parking Lot Vehicle Movements	27.4	18.8	27.6	26.1
Air Conditioning Units1	34.3	31.1	32.3	36.2
Trash Enclosure Activity	36.7	31.7	36.7	40.2
Total (All Noise Sources)	**39.0**	**34.5**	**38.4**	**41.8**

[1] See Exhibit 10-A for the noise source locations. CadnaA noise model calculations are included in Appendix 10.2.

10.5 PROJECT OPERATIONAL NOISE LEVEL COMPLIANCE

To demonstrate compliance with local noise regulations, the Project-only operational noise levels are evaluated against exterior noise level thresholds based on the City of Menifee exterior noise level standards at nearby noise-sensitive receiver locations. Table 10-5 shows the operational noise levels associated with Village at Junipero Project will satisfy the City of Menifee 65 dBA L_{eq} daytime and 45 dBA L_{eq} nighttime exterior noise level standards at all nearby receiver locations. Therefore, the operational noise impacts are considered *less than significant* at the nearby noise-sensitive receiver locations.

TABLE 10-4: OPERATIONAL NOISE LEVEL COMPLIANCE

Receiver Location[1]	Project Operational Noise Levels (dBA L_{eq})[2]		Exterior Noise Level Standards (dBA L_{eq})[3]		Noise Level Standards Exceeded?[4]	
	Daytime	Nighttime	Daytime	Nighttime	Daytime	Nighttime
R1	46.5	39.0	65	45	No	No
R2	41.5	34.5	65	45	No	No
R3	46.2	38.4	65	45	No	No
R4	47.1	41.8	65	45	No	No

[1] See Exhibit 10-A for the receiver locations.
[2] Proposed Project operational noise levels as shown on Tables 10-2 and 10-3.
[3] Exterior noise level standard for residential land use as shown on Table 4-1.
[4] Do the estimated Project operational noise source activities exceed the noise level standards?
[5] Non-residential land use with no expected nighttime occupancy.
"Daytime" = 7:01 a.m. to 10:00 p.m.; "Nighttime" = 10:01 p.m. to 7:00 a.m.

10.6 PROJECT OPERATIONAL NOISE LEVEL INCREASES

To describe the Project operational noise level increases, the Project operational noise levels are combined with the existing ambient noise levels measurements for the nearby receiver locations potentially impacted by Project operational noise sources. Since the units used to measure noise, decibels (dB), are logarithmic units, the Project-operational and existing ambient noise levels cannot be combined using standard arithmetic equations. (7) Instead, they must be logarithmically added using the following base equation:

$$SPL_{Total} = 10\log_{10}[10^{SPL1/10} + 10^{SPL2/10} + \ldots 10^{SPLn/10}]$$

Where "SPL1," "SPL2," etc. are equal to the sound pressure levels being combined, or in this case, the Project-operational and existing ambient noise levels. The difference between the combined Project and ambient noise levels describes the Project noise level increases to the existing ambient noise environment. As indicated on Tables 10-5 and 10-6, the Project will generate daytime and nighttime operational noise level increases ranging from 0.0 to 1.5 dBA L_{eq} at the nearest receiver locations. Project-related operational noise level increases will satisfy the operational noise level increase significance criteria presented on Table 4-1. Therefore, the incremental Project operational noise level increase is considered *less than significant* at all receiver locations.

TABLE 10-5: DAYTIME PROJECT OPERATIONAL NOISE LEVEL INCREASES

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Increase Criteria[7]	Increase Criteria Exceeded?
R1	46.5	L1	50.2	51.7	1.5	5	No
R2	41.5	L2	57.0	57.1	0.1	5	No
R3	46.2	L3	58.7	58.9	0.2	5	No
R4	47.1	L4	57.6	58.0	0.4	5	No

[1] See Exhibit 10-A for the receiver locations.
[2] Total Project daytime operational noise levels as shown on Table 10-2.
[3] Reference noise level measurement locations as shown on Exhibit 9-A.
[4] Observed daytime ambient noise levels as shown on Table 5-1.
[5] Represents the combined ambient conditions plus the Project activities.
[6] The noise level increase expected with the addition of the proposed Project activities.
[7] Significance increase criteria as shown on Table 4-1.

TABLE 10-6: NIGHTTIME OPERATIONAL NOISE LEVEL INCREASES

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Increase Criteria[7]	Increase Criteria Exceeded?
R1	39.0	L1	45.2	46.1	0.9	5	No
R2	34.5	L2	54.9	54.9	0.0	5	No
R3	38.4	L3	47.4	47.9	0.5	5	No
R4	41.8	L4	50.1	50.7	0.6	5	No

[1] See Exhibit 10-A for the receiver locations.
[2] Total Project nighttime operational noise levels as shown on Table 10-3.
[3] Reference noise level measurement locations as shown on Exhibit 9-A.
[4] Observed daytime ambient noise levels as shown on Table 5-1.
[5] Represents the combined ambient conditions plus the Project activities.
[6] The noise level increase expected with the addition of the proposed Project activities.
[7] Significance increase criteria as shown on Table 4-1.

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11 CONSTRUCTION IMPACTS

This section analyzes potential impacts resulting from the short-term construction activities associated with the development of the Project. Exhibit 11-A shows the construction activity boundaries in relation to the nearest sensitive receiver locations previously described in Section 9. Section 9.215.060(C) of the City's Development Code indicates that private construction projects, located within one-quarter of a mile from an occupied residence, are considered exempt from the Development Code noise standards if they occur within the permitted hours of 6:30 a.m. and 7:00 p.m., with no activity allowed on Sundays and nationally recognized holidays (30). In addition, since neither the City of Menifee General Plan or Development Code establish numeric maximum acceptable construction source noise levels at potentially affected receivers for CEQA analysis purposes. Therefore, a numerical construction threshold based on Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual is used for analysis of daytime construction impacts. The FTA considers a daytime exterior construction noise level of 80 dBA L_{eq} as a reasonable threshold for noise sensitive residential land use. (20 p. 179).

11.1 CONSTRUCTION NOISE LEVELS

Noise generated by the Project construction equipment will include a combination of trucks, power tools, concrete mixers, and portable generators that when combined can reach high levels. The number and mix of construction equipment are expected to occur in the following stages:

- Site Preparation
- Grading
- Building Construction
- Paving
- Architectural Coating

11.2 CONSTRUCTION REFERENCE NOISE LEVELS

To describe construction noise activities, this construction noise analysis was prepared using reference construction equipment noise levels from the Federal Highway Administration (FHWA) published the Roadway Construction Noise Model (RCNM), which includes a national database of construction equipment reference noise emission levels. (31) The RCNM equipment database, provides a comprehensive list of the noise generating characteristics for specific types of construction equipment. In addition, the database provides an acoustical usage factor to estimate the fraction of time each piece of construction equipment is operating at full power (i.e., its loudest condition) during a construction operation.

EXHIBIT 11-A: CONSTRUCTION NOISE SOURCE LOCATIONS

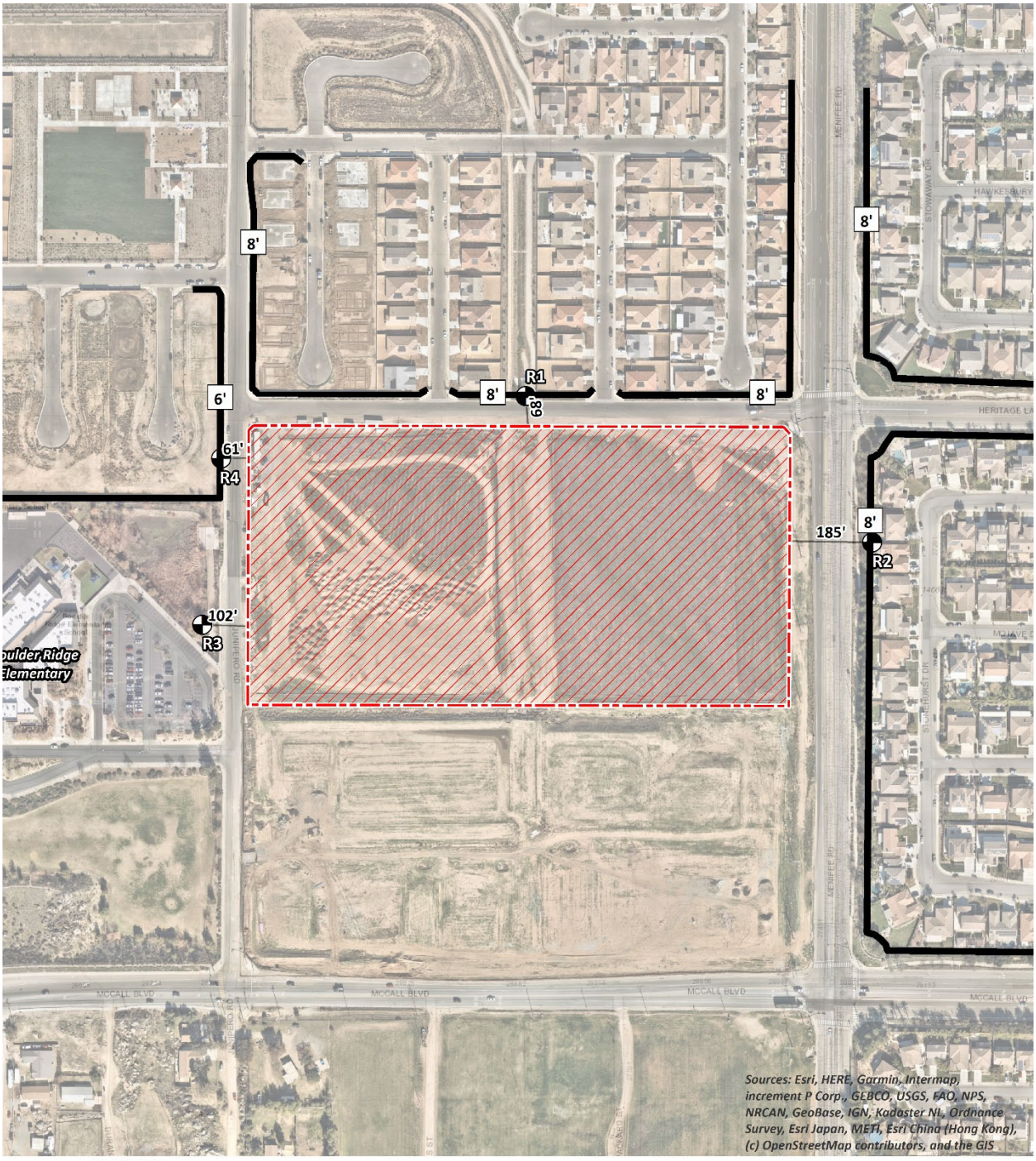


TABLE 11-1: CONSTRUCTION REFERENCE NOISE LEVELS

Construction Stage	Reference Construction Equipmnet[1]	Reference Noise Level @ 50 Feet (dBA L_{eq})	Composite Reference Noise Level (dBA L_{eq})	Reference Power Level (dBA L_w)
Site Preparation	Dozer	78.0	83.4	115.1
	Front End Loader	75.0		
	Grader	81.0		
Grading	Excavator	77.0	84.0	115.6
	Tractor	80.0		
	Scraper	80.0		
Building Construction	Crane	73.0	77.4	109.1
	Backhoe	74.0		
	Generator (<25kVA)	70.0		
Paving	Paver	74.0	77.8	109.5
	Dump Truck	72.0		
	Roller	73.0		
Architectural Coating	Man Lift	68.0	76.2	107.8
	Compressor (air)	74.0		
	Generator (<25kVA)	70.0		

[1] FHWA Road Construction Noise Model.

11.3 CONSTRUCTION NOISE ANALYSIS

Using the reference construction equipment noise levels and the CadnaA noise prediction model, calculations of the Project construction noise level impacts at the nearby sensitive receiver locations were completed. To assess the worst-case construction noise levels, the Project construction noise analysis relies on the highest noise level impacts when the equipment with the highest reference noise level is operating at the closest point from the edge of primary construction activity (Project site boundary) to each receiver location. As shown on Table 11-2, the construction noise levels are expected to range from 50.1 to 62.6 dBA L_{eq}, and the highest construction levels are expected to range from 57.9 to 62.6 dBA L_{eq} at the nearby receiver locations. Appendix 11.1 includes the detailed CadnaA construction noise model inputs.

TABLE 11-2: CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})					
	Site Preparation	Grading	Building Construction	Paving	Architectural Coating	Highest Levels[2]
R1	62.1	62.6	56.0	56.5	54.8	62.6
R2	57.4	57.9	51.3	51.8	50.1	57.9
R3	59.8	60.3	53.7	54.2	52.5	60.3
R4	61.2	61.7	55.1	55.6	53.9	61.7

[1] Noise receiver locations are shown on Exhibit 11-A.
[2] Construction noise level calculations based on distance from the construction activity, which is measured from the Project site boundary to the nearest receiver locations. CadnaA construction noise model inputs are included in Appendix 11.1.

11.4 CONSTRUCTION NOISE LEVEL COMPLIANCE

To evaluate whether the Project will generate potentially significant short-term noise levels at nearest receiver locations, a construction-related daytime noise level threshold of 80 dBA L_{eq} is used as a reasonable threshold to assess the daytime construction noise level impacts. The construction noise analysis shows that the nearest receiver locations will satisfy the reasonable daytime 80 dBA L_{eq} significance threshold during Project construction activities as shown on Table 11-3. Therefore, the noise impacts due to Project construction noise are considered *less than significant* at all receiver locations.

TABLE 11-3: CONSTRUCTION NOISE LEVEL COMPLIANCE

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})		
	Highest Construction Noise Levels[2]	Threshold[3]	Threshold Exceeded?[4]
R1	62.6	80	No
R2	57.9	80	No
R3	60.3	80	No
R4	61.7	80	No

[1] Noise receiver locations are shown on Exhibit 11-A.
[2] Highest construction noise level operating at the Project site boundary to nearby receiver locations (Table 11-2).
[3] Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual.
[4] Do the estimated Project construction noise levels exceed the construction noise level threshold?

11.5 CONSTRUCTION VIBRATION IMPACTS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures and soil type. It is expected that ground-borne vibration from Project construction activities would cause only intermittent, localized intrusion. Ground-borne vibration levels resulting from typical construction activities occurring within the Project site were estimated by data published by the Federal Transit Administration (FTA). (20) However, while vehicular traffic is rarely perceptible, construction has the potential to result in varying degrees of temporary ground vibration, depending on the specific construction activities and equipment used. Ground vibration levels associated with various types of construction equipment are summarized on Table 11-4. Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the potential Project construction vibration levels using the following vibration assessment methods defined by the Caltrans. To calculate the vibration of equipment at distance Caltrans provides the following equation: $PPV_{equip} = PPV_{ref} \times (25/D)^{1.1}$

TABLE 11-4: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

Equipment	PPV (in/sec) at 25 feet
Small bulldozer	0.003
Jackhammer	0.035
Loaded Trucks	0.076
Large bulldozer	0.089

Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual

Using the vibration source level of construction equipment provided on Table 11-4 and the construction vibration assessment methodology published by the FTA, it is possible to estimate the Project vibration impacts. Table 11-5 presents the expected Project related vibration levels at the nearby receiver locations. At distances ranging from 61 to 185 feet from Project construction activities to the nearest façade receiver locations, construction vibration velocity levels are estimated to range from less than 0.01 to 0.02 in/sec PPV and will not exceed the Caltrans construction vibration threshold of 0.30 in/sec PPV at off-site receivers, as shown on Table 11-5. Therefore, the Project-related vibration impacts are considered less than significant.

TABLE 11-5: PROJECT CONSTRUCTION VIBRATION LEVELS – UNMITIGATED

Receiver Location[1]	Distance to Const. Activity (Feet)[2]	Typical Construction Vibration Levels PPV (in/sec)[3]					Thresholds PPV (in/sec)[4]	Thresholds Exceeded?[5]
		Small bulldozer	Jack-hammer	Loaded Trucks	Large Bulldozer	Highest Vibration Level		
R1	89'	0.00	0.01	0.01	0.01	0.01	0.30	No
R2	185'	0.00	0.00	0.00	0.00	0.00	0.30	No
R3	102'	0.00	0.00	0.01	0.01	0.01	0.30	No
R4	61'	0.00	0.01	0.02	0.02	0.02	0.30	No

[1] Construction facade receiver locations are shown on Exhibit 11-A.
[2] Distance from facade receiver location to Project construction boundary.
[3] Based on the Vibration Source Levels of Construction Equipment (Table 11-4).
[4] Caltrans Transportation and Construction Vibration Manual, April 2020 Table 19
[5] Does the peak vibration exceed the acceptable vibration thresholds?
"PPV" = Peak Particle Velocity

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13 CERTIFICATION

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the proposed Village at Junipero Project. The information contained in this noise study report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (619) 788-1971.

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EDUCATION

Bachelor of Science in Urban and Regional Planning
California Polytechnic State University, Pomona • June 2000

PROFESSIONAL AFFILIATIONS

ASA – Acoustical Society of America
APA – American Planning Association
AWMA – Air and Waste Management Association

PROFESSIONAL CERTIFICATIONS

Approved Acoustical Consultant • County of San Diego
FHWA Traffic Noise Model of Training • November 2004
CadnaA Basic and Advanced Training Certificate • October 2008.

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APPENDIX 3.1:

CITY OF MENIFEE DEVELOPMENT CODE

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TITLE 9: PLANNING AND ZONING

ARTICLE 4: SITE DEVELOPMENT REGULATIONS AND PERFORMANCE STANDARDS

Chapter 9.210 Performance Standards

9.210.060 Noise Control Regulations

A. **Intent**. At certain levels, sound becomes noise and may jeopardize the health, safety or general welfare of city residents and degrade their quality of life. Pursuant to its police power, the City Council hereby declares that noise shall be regulated in the manner described herein. This chapter is intended to establish citywide standards regulating noise. This chapter is not intended to establish thresholds of significance for the purpose of any analysis required by the California Environmental Quality Act (CEQA), and no such thresholds are hereby established.

B. **General Exemptions**. Sound emanating from the following sources are exempt from the provisions of this chapter:

1. Facilities owned or operated by or for a governmental agency.
2. Capital improvement projects of a governmental agency.
3. The maintenance or repair of public properties.
4. Public safety personnel in the course of executing their official duties, including, but not limited to, sworn peace officers, emergency personnel and public utility personnel. This exemption includes, without limitation, sound emanating from all equipment used by such personnel, whether stationary or mobile.
5. Public and private schools and school-sponsored activities.
6. Agricultural operations on land designated Agriculture in the City's General Plan, or land zoned AG (Agriculture), provided such operations are carried out in a manner consistent with accepted industry standards. This exemption includes, without limitation, sound emanating from all equipment used during such operations, whether stationary or mobile.
7. Wind energy conversion systems (WECS), provided such systems comply with the noise provisions of the Menifee Municipal Code.
8. Property maintenance, including, but not limited to, the operation of lawnmowers, leaf blowers, etc., provided such maintenance occurs between the hours of 7:00 a.m. and 8:00 p.m.
9. Motor vehicles (factory equipped), other than off-highway vehicles. This exemption does not include sound emanating from motor vehicle sound systems.
10. Heating and air conditioning equipment in proper repair.
11. Safety, warning and alarm devices, including, but not limited to, house and car alarms, and other warning devices that are designed to protect the public health, safety and welfare.
12. The discharge of firearms consistent with all state laws.
13. Bars, nightclubs, cocktail lounges, cabarets, billiards/pool halls, restaurants, drive-ins and eating establishments that have a Conditional Use Permit for on-site alcohol sales and live entertainment (interior noise). Outdoor patios and similar areas shall be subject to the requirements of this chapter, unless conditioned otherwise under Conditional Use Permit review.

C. **Construction-Related Exemptions**. Exceptions may be requested from the standards set forth in Section 9.210.060 of this chapter and may be characterized as construction-related, single event or continuous events exceptions.

1. Private construction projects, with or without a Building Permit, located one-quarter of a mile or more from an inhabited dwelling.
2. Private construction projects, with or without a building permit, located within one-quarter of a mile from an inhabited dwelling, shall be permitted Monday through Saturday, except nationally recognized holidays, 6:30 a.m. to 7:00 p.m., or specified in Section 8.01.010. There shall be no construction permitted on Sunday or nationally recognized holidays unless approval is obtained from the City Building Official or City Engineer.
3. Construction-related exceptions. If construction occurs during off hours or exceeds noise thresholds, an application for a construction-related exception shall be made using the temporary use application provided by the Community Development Director in Chapter 9.105 of this Title. For construction activities on Sunday or nationally recognized holidays, Section 8.01.010 of this Code shall prevail.

D. **General Sound Level Standards**. No person shall create any sound, or allow the creation of any sound, on any property that causes the exterior and interior sound level on any other occupied property to exceed the sound level standards set forth in Table 9.210.060-1, Stationary Source Noise Standards.

Table 9.210.060-1 Stationary Source Noise Standards

Land Use	Interior Standards	Exterior Standards
10:00 p.m. to 7:00 a.m.	40 L_{eq} (10-minute)	45 L_{eq} (10-minute)

D. **General Sound Level Standards**. No person shall create any sound, or allow the creation of any sound, on any property that causes the exterior and interior sound level on any other occupied property to exceed the sound level standards set forth in Table 9.210.060-1, Stationary Source Noise Standards.

Table 9.210.060-1 Stationary Source Noise Standards		
Land Use	**Interior Standards**	**Exterior Standards**
10:00 p.m. to 7:00 a.m.	40 L_{eq} (10-minute)	45 L_{eq} (10-minute)
7:00 a.m. to 10:00 p.m.	55 L_{eq} (10-minute)	65 L_{eq} (10-minute)

E. **Sound Level Measurement Methodology**. Sound level measurements may be made anywhere within the boundaries of an occupied property. The actual location of a sound level measurement shall be at the discretion of the enforcement officials identified in Section 9.210.060.G. Sound level measurements shall be made with a sound level meter. Immediately before a measurement is made, the sound level meter shall be calibrated utilizing an acoustical calibrator meeting the standards of the American National Standards Institute. Following a sound level measurement, the calibration of the sound level meter shall be reverified. Sound level meters and calibration equipment shall be certified annually.

F. **Special Sound Level Measurement Methodology**. The general sound level standards set forth in Section 9.210.060.E apply to sound emanating from all sources, including the following special sound sources, and the person creating, or allowing the creation of, the sound is subject to the requirements of that section. The following special sound sources are also subject to the following additional standards; failure to comply with these standards constitutes separate violations of this chapter.

1. Motor vehicles.
   a. Off-highway vehicles.
      i. No person shall operate an off-highway vehicle unless it is equipped with a USDA-qualified spark arrester and a constantly operating and properly maintained muffler. A muffler is not considered constantly operating and properly maintained if it is equipped with a cutout, bypass or similar device.
      ii. No person shall operate an off-highway vehicle unless the noise emitted by the vehicle is not more than 96 dBA if the vehicle was manufactured on or after January 1, 1986, or is not more than 101 dBA if the vehicle was manufactured before January 1, 1986. For purposes of this division, emitted noise shall be measured a distance of 20 inches from the vehicle tailpipe using test procedures established by the Society of Automotive Engineers under Standard J-1287.
   b. Sound systems. No person shall operate a motor vehicle sound system, whether affixed to the vehicle or not, between the hours of 10:00 p.m. and 8:00 a.m. the following morning, such that the sound system is audible to the human ear inside any inhabited dwelling. No person shall operate a motor vehicle sound system, whether affixed to the vehicle or not, at any other time such that the sound system is audible to the human ear at a distance greater than 100 feet from the vehicle.
2. Power tools and equipment. No person shall operate any power tools or equipment as specified in Section 8.01.010, such that the power tools or equipment is audible to the human ear inside an inhabited dwelling other than a dwelling in which the power tools or equipment may be located. No person shall operate any power tools or equipment at any other time such that the power tools or equipment are audible to the human ear at a distance greater than 100 feet from the power tools or equipment.
3. Audio equipment. No person shall operate any audio equipment, whether portable or not, between the hours of 10:00 p.m. and 8:00 a.m. the following morning such that the equipment is audible to the human ear inside an inhabited dwelling other than a dwelling in which the equipment may be located. No person shall operate any audio equipment, whether portable or not, at any other time such that the equipment is audible to the human ear at a distance greater than 100 feet from the equipment.
4. Sound-amplifying equipment and live music. No person shall install, use or operate sound-amplifying equipment, or perform, or allow to be performed, live music unless such activities comply with the following requirements. To the extent that these requirements conflict with any conditions of approval attached to an underlying land use permit, these requirements shall control.
   a. Sound-amplifying equipment or live music is prohibited between the hours of 10:00 p.m. and 8:00 a.m. the following morning on Sunday through Thursday and between the hours of 11:00 p.m. and 8:00 a.m. the following morning on Friday and Saturday.
   b. Sound emanating from sound-amplifying equipment or live music at any other time shall not be audible to the human ear at a distance greater than 200 feet from the equipment or music.

G. **Duty to Cooperate**. No person shall refuse to cooperate with, or obstruct, any peace officer or code enforcement officer when he or she is engaged in the process of enforcing the provisions of this chapter. This duty to cooperate may require a person to extinguish a sound source so that it can be determined whether sound emanating from the source violates the provisions of this chapter.

TITLE 9: PLANNING AND ZONING

ARTICLE 4: SITE DEVELOPMENT REGULATIONS AND PERFORMANCE STANDARDS

Chapter 9.215 Performance Standards

9.215.060 Noise Control Regulations

A. **Intent.** At certain levels, sound becomes noise and may jeopardize the health, safety or general welfare of city residents and degrade their quality of life. Pursuant to its police power, the City Council hereby declares that noise shall be regulated in the manner described herein. This chapter is intended to establish citywide standards regulating noise. This chapter is not intended to establish thresholds of significance for the purpose of any analysis required by the California Environmental Quality Act (CEQA), and no such thresholds are hereby established.

B. **General Exemptions.** Sound emanating from the following sources are exempt from the provisions of this chapter:

1. Facilities owned or operated by or for a governmental agency.
2. Capital improvement projects of a governmental agency.
3. The maintenance or repair of public properties.
4. Public safety personnel in the course of executing their official duties, including, but not limited to, sworn peace officers, emergency personnel and public utility personnel. This exemption includes, without limitation, sound emanating from all equipment used by such personnel, whether stationary or mobile.
5. Public and private schools and school-sponsored activities.
6. Agricultural operations on land designated Agriculture in the City's General Plan, or land zoned AG (Agriculture), provided such operations are carried out in a manner consistent with accepted industry standards. This exemption includes, without limitation, sound emanating from all equipment used during such operations, whether stationary or mobile.
7. Wind energy conversion systems (WECS), provided such systems comply with the noise provisions of the Menifee Municipal Code.
8. Property maintenance, including, but not limited to, the operation of lawnmowers, leaf blowers, etc., provided such maintenance occurs between the hours of 7:00 a.m. and 8:00 p.m.
9. Motor vehicles (factory equipped), other than off-highway vehicles. This exemption does not include sound emanating from motor vehicle sound systems.
10. Heating and air conditioning equipment in proper repair.
11. Safety, warning and alarm devices, including, but not limited to, house and car alarms, and other warning devices that are designed to protect the public health, safety and welfare.
12. The discharge of firearms consistent with all state laws.
13. Bars, nightclubs, cocktail lounges, cabarets, billiards/pool halls, restaurants, drive-ins and eating establishments that have a Conditional Use Permit for on-site alcohol sales and live entertainment (interior noise). Outdoor patios and similar areas shall be subject to the requirements of this chapter, unless conditioned otherwise under Conditional Use Permit review.

C. **Construction-Related Exemptions.** Exceptions may be requested from the standards set forth in Section 9.215.060 of this chapter and may be characterized as construction-related, single event or continuous events exceptions.

1. Private construction projects, with or without a Building Permit, located one-quarter of a mile or more from an inhabited dwelling.
2. Private construction projects, with or without a building permit, located within one-quarter of a mile from an inhabited dwelling, shall be permitted Monday through Saturday, except nationally recognized holidays, 6:30 a.m. to 7:00 p.m., or specified in Section 8.01.010. There shall be no construction permitted on Sunday or nationally recognized holidays unless approval is obtained from the City Building Official or City Engineer.
3. Construction-related exceptions. If construction occurs during off hours or exceeds noise thresholds, an application for a construction-related exception shall be made using the temporary use application provided by the Community Development Director in Chapter 9.110 of this Title. For construction activities on Sunday or nationally recognized holidays, Section 8.01.010 of this Code shall prevail.

D. **General Sound Level Standards.** No person shall create any sound, or allow the creation of any sound, on any property that causes the exterior and interior sound level on any other occupied property to exceed the sound level standards set forth in Table 9.215.060-1, Stationary Source Noise Standards.

Table 9.215.060-1 Stationary Source Noise Standards

Land Use	Interior Standards	Exterior Standards
10:00 p.m. to 7:00 a.m.	40 L_{eq} (10-minute)	45 L_{eq} (10-minute)
7:00 a.m. to 10:00 p.m.	55 L_{eq} (10-minute)	65 L_{eq} (10-minute)

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Development Director in Chapter 9.110 of this Title. For construction activities on Sunday or nationally recognized holidays, Section 8.01.010 of this Code shall prevail.

D. **General Sound Level Standards**. No person shall create any sound, or allow the creation of any sound, on any property that causes the exterior and interior sound level on any other occupied property to exceed the sound level standards set forth in Table 9.215.060-1, Stationary Source Noise Standards.

Table 9.215.060-1 Stationary Source Noise Standards

Land Use	Interior Standards	Exterior Standards
10:00 p.m. to 7:00 a.m.	40 L_{eq} (10-minute)	45 L_{eq} (10-minute)
7:00 a.m. to 10:00 p.m.	55 L_{eq} (10-minute)	65 L_{eq} (10-minute)

E. **Sound Level Measurement Methodology**. Sound level measurements may be made anywhere within the boundaries of an occupied property. The actual location of a sound level measurement shall be at the discretion of the enforcement officials identified in Section 9.215.060.G. Sound level measurements shall be made with a sound level meter. Immediately before a measurement is made, the sound level meter shall be calibrated utilizing an acoustical calibrator meeting the standards of the American National Standards Institute. Following a sound level measurement, the calibration of the sound level meter shall be reverified. Sound level meters and calibration equipment shall be certified annually.

F. **Special Sound Level Measurement Methodology**. The general sound level standards set forth in Section 9.215.060.E apply to sound emanating from all sources, including the following special sound sources, and the person creating, or allowing the creation of, the sound is subject to the requirements of that section. The following special sound sources are also subject to the following additional standards; failure to comply with these standards constitutes separate violations of this chapter.

1. Motor vehicles.
   a. Off-highway vehicles.
      i. No person shall operate an off-highway vehicle unless it is equipped with a USDA-qualified spark arrester and a constantly operating and properly maintained muffler. A muffler is not considered constantly operating and properly maintained if it is equipped with a cutout, bypass or similar device.
      ii. No person shall operate an off-highway vehicle unless the noise emitted by the vehicle is not more than 96 dBA if the vehicle was manufactured on or after January 1, 1986, or is not more than 101 dBA if the vehicle was manufactured before January 1, 1986. For purposes of this division, emitted noise shall be measured a distance of 20 inches from the vehicle tailpipe using test procedures established by the Society of Automotive Engineers under Standard J-1287.
   b. Sound systems. No person shall operate a motor vehicle sound system, whether affixed to the vehicle or not, between the hours of 10:00 p.m. and 8:00 a.m. the following morning, such that the sound system is audible to the human ear inside any inhabited dwelling. No person shall operate a motor vehicle sound system, whether affixed to the vehicle or not, at any other time such that the sound system is audible to the human ear at a distance greater than 100 feet from the vehicle.
2. Power tools and equipment. No person shall operate any power tools or equipment as specified in Section 8.01.010, such that the power tools or equipment is audible to the human ear inside an inhabited dwelling other than a dwelling in which the power tools or equipment may be located. No person shall operate any power tools or equipment at any other time such that the power tools or equipment are audible to the human ear at a distance greater than 100 feet from the power tools or equipment.
3. Audio equipment. No person shall operate any audio equipment, whether portable or not, between the hours of 10:00 p.m. and 8:00 a.m. the following morning such that the equipment is audible to the human ear inside an inhabited dwelling other than a dwelling in which the equipment may be located. No person shall operate any audio equipment, whether portable or not, at any other time such that the equipment is audible to the human ear at a distance greater than 100 feet from the equipment.
4. Sound-amplifying equipment and live music. No person shall install, use or operate sound-amplifying equipment, or perform, or allow to be performed, live music unless such activities comply with the following requirements. To the extent that these requirements conflict with any conditions of approval attached to an underlying land use permit, these requirements shall control.
   a. Sound-amplifying equipment or live music is prohibited between the hours of 10:00 p.m. and 8:00 a.m. the following morning on Sunday through Thursday and between the hours of 11:00 p.m. and 8:00 a.m. the following morning on Friday and Saturday.
   b. Sound emanating from sound-amplifying equipment or live music at any other time shall not be audible to the human ear at a distance greater than 200 feet from the equipment or music.

G. **Duty to Cooperate**. No person shall refuse to cooperate with, or obstruct, any peace officer or code enforcement officer when he or she is engaged in the process of enforcing the provisions of this chapter. This duty to cooperate may require a person to extinguish a sound source so that it can be determined whether sound emanating from the source violates the provisions of this chapter.

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APPENDIX 5.1:

STUDY AREA PHOTOS

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JN: 14854 - Village at Junipero



14854_L1_T_E
33, 43' 30.340000"117, 9' 22.860000"



14854_L1_T_N
33, 43' 30.350000"117, 9' 22.880000"



14854_L1_T_S
33, 43' 30.340000"117, 9' 22.860000"



14854_L1_T_W
33, 43' 30.310000"117, 9' 22.860000"

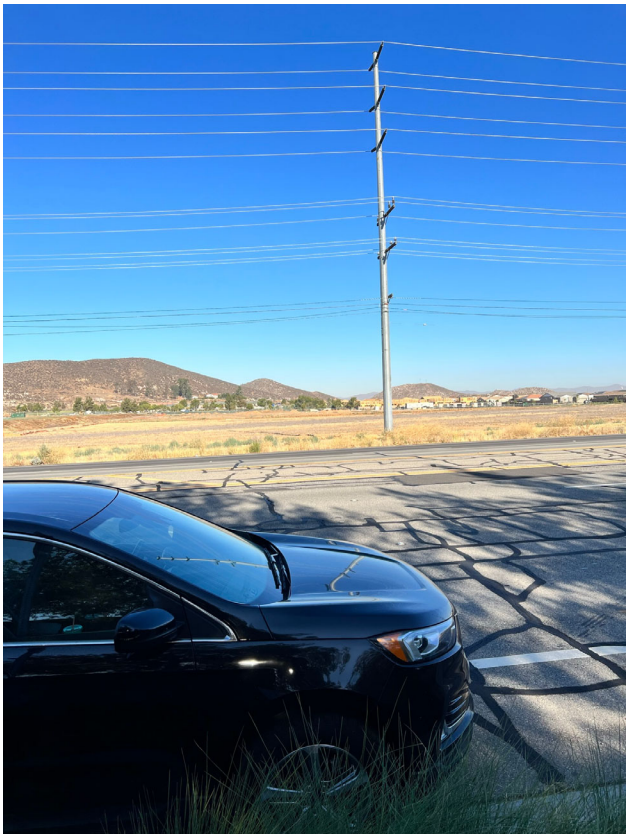
JN: 14854 - Village at Junipero



14854_L2_C_E
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14854_L2_C_N
33, 43' 24.840000"117, 9' 14.230000"



14854_L2_C_S
33, 43' 24.830000"117, 9' 14.230000"



14854_L2_C_W
33, 43' 24.830000"117, 9' 14.230000"

JN: 14854 - Village at Junipero



14854_L3_O_E
33, 43' 25.150000"117, 9' 30.470000"



14854_L3_O_N
33, 43' 25.150000"117, 9' 30.470000"



14854_L3_O_S
33, 43' 25.160000"117, 9' 30.470000"



14854_L3_O_W
33, 43' 25.150000"117, 9' 30.470000"

JN: 14854 - Village at Junipero



14854_L4_N_E
33, 43' 28.570000"117, 9' 30.470000"



14854_L4_N_N
33, 43' 28.550000"117, 9' 30.470000"



14854_L4_N_S
33, 43' 28.570000"117, 9' 30.470000"



14854_L4_N_W
33, 43' 28.550000"117, 9' 30.470000"

APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

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24-Hour Noise Level Measurement Summary

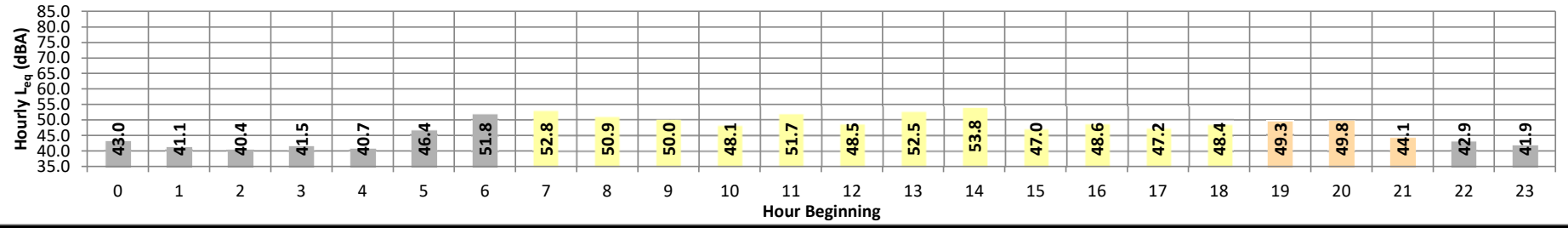
Date: Friday, July 15, 2022
Project: Village at Junipero

Location: L1 -Located north of the Project site along Heritage Lake Drive near single-family residence at 27151 Settlement Street.

Meter: Piccolo II

JN: 14854
Analyst: B. Maddux

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	43.0	49.0	39.3	48.3	47.9	46.9	46.1	43.8	41.7	40.1	39.8	39.5	43.0	10.0	53.0
	1	41.1	46.1	37.8	45.9	45.5	44.6	43.8	41.7	40.2	38.5	38.2	37.9	41.1	10.0	51.1
	2	40.4	44.2	37.4	43.8	43.6	43.0	42.6	41.4	39.8	38.1	37.8	37.5	40.4	10.0	50.4
	3	41.5	52.1	36.3	51.9	51.2	48.0	45.1	39.5	37.9	36.8	36.6	36.4	41.5	10.0	51.5
	4	40.7	47.4	37.5	47.0	46.6	45.5	44.1	40.7	39.1	38.0	37.8	37.6	40.7	10.0	50.7
	5	46.4	53.8	42.2	53.4	52.9	51.1	49.6	46.6	45.0	42.9	42.6	42.3	46.4	10.0	56.4
	6	51.8	61.1	44.9	60.9	60.4	58.9	56.8	50.6	48.0	45.7	45.4	45.0	51.8	10.0	61.8
Day	7	52.8	63.5	42.7	63.1	62.4	60.2	57.8	51.4	47.7	43.8	43.3	42.9	52.8	0.0	52.8
	8	50.9	58.8	42.1	58.5	58.3	57.3	56.1	51.6	46.8	43.1	42.7	42.3	50.9	0.0	50.9
	9	50.0	59.9	40.7	59.6	58.9	56.9	54.9	49.7	45.4	41.8	41.3	40.9	50.0	0.0	50.0
	10	48.1	58.8	39.2	58.4	57.7	55.0	52.4	47.1	43.4	40.4	39.9	39.4	48.1	0.0	48.1
	11	51.7	62.2	39.8	61.9	61.4	59.7	57.7	50.0	44.9	41.0	40.5	40.0	51.7	0.0	51.7
	12	48.5	58.7	39.0	58.3	57.8	55.6	53.4	47.6	44.1	40.5	40.0	39.2	48.5	0.0	48.5
	13	52.5	61.9	40.8	61.7	61.5	60.5	59.3	49.3	45.3	41.8	41.4	40.9	52.5	0.0	52.5
	14	53.8	64.1	41.2	63.6	63.1	61.1	59.8	52.3	45.8	42.4	41.9	41.3	53.8	0.0	53.8
	15	47.0	54.7	41.5	54.0	53.4	51.8	50.6	47.6	45.2	42.6	42.1	41.6	47.0	0.0	47.0
	16	48.6	55.4	41.8	54.6	54.1	53.2	52.5	50.2	46.0	42.9	42.4	41.9	48.6	0.0	48.6
	17	47.2	54.6	42.0	53.9	53.2	51.6	50.4	47.8	45.7	43.1	42.6	42.2	47.2	0.0	47.2
	18	48.4	58.3	41.9	57.6	56.8	54.7	52.9	47.7	45.4	43.0	42.6	42.1	48.4	0.0	48.4
Evening	19	49.3	59.3	42.1	58.9	58.3	55.6	53.4	49.0	45.8	43.3	42.9	42.3	49.3	5.0	54.3
	20	49.8	57.4	40.5	57.1	56.7	55.8	55.2	50.8	44.2	41.5	41.1	40.7	49.8	5.0	54.8
	21	44.1	51.6	39.5	51.3	50.7	48.4	47.0	44.6	42.9	40.4	40.0	39.6	44.1	5.0	49.1
Night	22	42.9	48.8	39.5	48.5	48.3	47.1	46.0	43.2	41.6	40.1	39.9	39.6	42.9	10.0	52.9
	23	41.9	49.6	38.2	48.9	48.3	46.0	44.2	42.0	40.8	38.9	38.6	38.3	41.9	10.0	51.9

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day (7am-7pm)	Min	47.0	54.6	39.0	53.9	53.2	51.6	50.4	47.1	43.4	40.4	39.9	39.2
	Max	53.8	64.1	42.7	63.6	63.1	61.1	59.8	52.3	47.7	43.8	43.3	42.9
Energy Average		50.5	Average:		58.8	58.2	56.5	54.8	49.4	45.5	42.2	41.7	41.2
Evening (7pm-10pm)	Min	44.1	51.6	39.5	51.3	50.7	48.4	47.0	44.6	42.9	40.4	40.0	39.6
	Max	49.8	59.3	42.1	58.9	58.3	55.8	55.2	50.8	45.8	43.3	42.9	42.3
Energy Average		48.4	Average:		55.7	55.2	53.3	51.9	48.1	44.3	41.7	41.3	40.8
Night (10pm-7am)	Min	40.4	44.2	36.3	43.8	43.6	43.0	42.6	39.5	37.9	36.8	36.6	36.4
	Max	51.8	61.1	44.9	60.9	60.4	58.9	56.8	50.6	48.0	45.7	45.4	45.0
Energy Average		45.2	Average:		49.8	49.4	47.9	46.5	43.3	41.6	39.9	39.7	39.4

L_{eq} (dBA)		
24-Hour	Daytime (7am-10pm)	Nighttime (10pm-7am)
48.9	50.2	45.2

24-Hour CNEL (dBA)

53.2

24-Hour Noise Level Measurement Summary

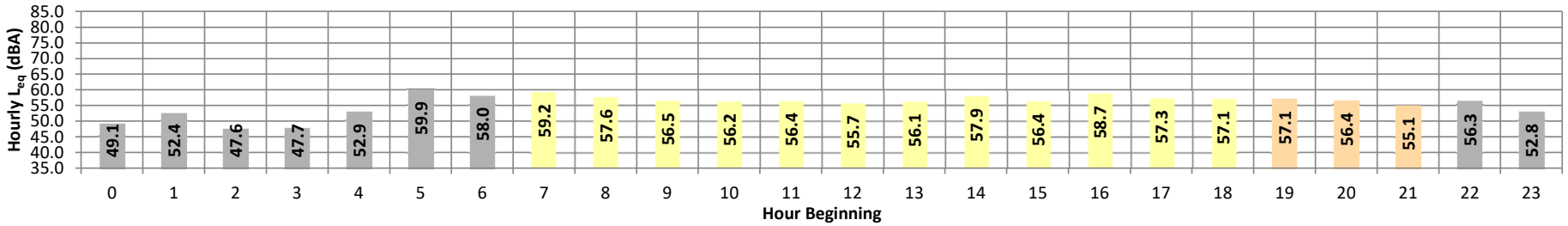
Date: Friday, July 15, 2022
Project: Village at Junipero

Location: L2 -Located east of the Project site along Menifee Road near single-family residence at 27299 Stonehurst Road.

Meter: Piccolo II

JN: 14854
Analyst: B. Maddux

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	49.1	60.7	35.2	60.2	59.5	56.9	54.3	46.7	41.3	36.6	36.2	35.6	49.1	10.0	59.1
	1	52.4	64.7	34.8	64.2	63.6	60.7	57.7	47.7	41.3	36.2	35.9	35.0	52.4	10.0	62.4
	2	47.6	59.7	34.2	59.2	58.5	55.3	52.3	44.9	39.1	35.1	34.7	34.3	47.6	10.0	57.6
	3	47.7	59.3	34.5	59.0	58.3	55.6	53.1	44.8	39.1	35.4	35.0	34.6	47.7	10.0	57.7
	4	52.9	64.8	37.4	64.2	63.5	60.6	58.3	50.2	43.7	38.7	38.0	37.5	52.9	10.0	62.9
	5	59.9	73.4	42.2	73.0	71.8	67.3	63.6	55.5	50.3	43.7	42.8	42.3	59.9	10.0	69.9
	6	58.0	67.6	45.4	67.2	66.7	64.3	62.7	58.5	53.6	47.2	46.3	45.6	58.0	10.0	68.0
Day	7	59.2	70.6	45.5	70.1	69.3	66.1	63.4	58.4	53.9	47.3	46.4	45.7	59.2	0.0	59.2
	8	57.6	67.2	45.0	66.7	66.0	63.9	62.5	58.0	53.9	46.6	45.9	45.2	57.6	0.0	57.6
	9	56.5	66.6	42.6	66.0	65.3	62.9	61.0	57.0	52.3	44.6	43.7	42.8	56.5	0.0	56.5
	10	56.2	67.8	41.1	67.1	66.2	62.6	60.8	55.9	50.7	43.3	42.1	41.3	56.2	0.0	56.2
	11	56.4	67.4	41.8	67.0	66.1	63.1	60.8	56.1	51.2	44.2	43.0	42.1	56.4	0.0	56.4
	12	55.7	65.0	41.8	64.6	63.9	61.9	60.6	56.3	51.8	43.8	42.8	42.0	55.7	0.0	55.7
	13	56.1	65.5	43.4	65.1	64.5	62.5	60.8	56.6	52.5	45.3	44.4	43.6	56.1	0.0	56.1
	14	57.9	69.5	43.2	68.9	67.9	64.7	62.2	57.1	52.5	45.0	44.0	43.3	57.9	0.0	57.9
	15	56.4	66.3	43.6	65.9	65.3	63.0	61.1	56.4	52.3	45.7	44.7	43.8	56.4	0.0	56.4
	16	58.7	70.4	44.3	69.6	68.6	66.0	63.5	57.5	53.3	46.6	45.6	44.5	58.7	0.0	58.7
	17	57.3	68.4	44.1	67.9	67.0	64.3	62.1	56.9	51.9	45.6	44.9	44.2	57.3	0.0	57.3
	18	57.1	67.4	44.7	67.0	66.4	63.9	61.8	57.0	52.8	46.4	45.6	44.9	57.1	0.0	57.1
Evening	19	57.1	68.5	44.2	68.0	67.0	64.0	61.3	56.2	52.0	45.5	44.8	44.3	57.1	5.0	62.1
	20	56.4	67.1	43.4	66.4	65.7	62.8	61.4	56.4	51.5	44.8	44.2	43.6	56.4	5.0	61.4
	21	55.1	64.6	42.9	64.3	63.7	61.7	60.2	55.5	50.3	44.5	43.7	43.1	55.1	5.0	60.1
Night	22	56.3	67.9	40.3	67.5	66.9	64.0	61.2	54.7	48.8	41.8	41.2	40.5	56.3	10.0	66.3
	23	52.8	63.7	36.9	63.2	62.6	60.3	58.2	52.1	46.1	38.6	37.8	37.1	52.8	10.0	62.8

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	55.7	65.0	41.1	64.6	63.9	61.9	60.6	55.9	50.7	43.3	42.1	41.3
(7am-7pm)	Max	59.2	70.6	45.5	70.1	69.3	66.1	63.5	58.4	53.9	47.3	46.4	45.7
Energy Average		57.2	Average:		67.2	66.4	63.7	61.7	56.9	52.4	45.4	44.4	43.6
Evening	Min	55.1	64.6	42.9	64.3	63.7	61.7	60.2	55.5	50.3	44.5	43.7	43.1
(7pm-10pm)	Max	57.1	68.5	44.2	68.0	67.0	64.0	61.4	56.4	52.0	45.5	44.8	44.3
Energy Average		56.3	Average:		66.2	65.5	62.8	61.0	56.0	51.3	44.9	44.2	43.7
Night	Min	47.6	59.3	34.2	59.0	58.3	55.3	52.3	44.8	39.1	35.1	34.7	34.3
(10pm-7am)	Max	59.9	73.4	45.4	73.0	71.8	67.3	63.6	58.5	53.6	47.2	46.3	45.6
Energy Average		54.9	Average:		64.2	63.5	60.6	57.9	50.6	44.8	39.3	38.7	38.1

L_{eq} (dBA)		
24-Hour	*Daytime (7am-10pm)*	*Nighttime (10pm-7am)*
56.4	**57.0**	**54.9**

24-Hour CNEL (dBA)

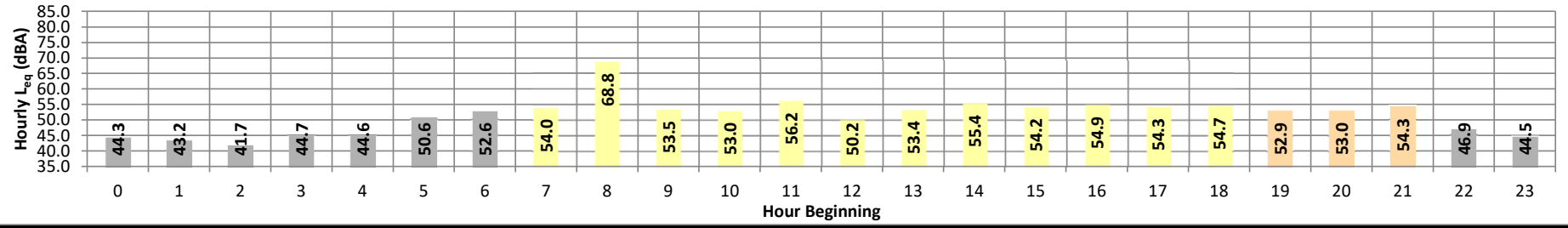
62.0

24-Hour Noise Level Measurement Summary

Date: Friday, July 15, 2022 *Location:* L3 -Located west of the Project site along Junipero Road near Boulder Ridge Elementary School *Meter:* Piccolo II *JN:* 14854

Project: Village at Junipero *Analyst:* B. Maddux

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	44.3	52.0	39.2	51.7	51.4	50.0	48.3	44.2	42.4	40.1	39.7	39.4	44.3	10.0	54.3
	1	43.2	51.7	37.8	51.4	51.0	49.1	47.1	42.8	40.9	38.6	38.3	37.9	43.2	10.0	53.2
	2	41.7	47.5	37.4	47.2	46.9	45.9	45.0	42.5	40.3	38.2	37.8	37.5	41.7	10.0	51.7
	3	44.7	54.9	37.6	54.7	54.3	52.2	49.6	42.7	40.4	38.3	38.1	37.7	44.7	10.0	54.7
	4	44.6	52.8	38.7	52.6	52.3	50.8	49.1	44.3	42.1	39.3	39.1	38.8	44.6	10.0	54.6
	5	50.6	59.3	43.4	58.9	58.6	57.0	55.6	50.0	47.1	44.3	43.9	43.5	50.6	10.0	60.6
	6	52.6	59.2	47.6	58.9	58.6	57.4	56.2	53.0	50.9	48.5	48.1	47.7	52.6	10.0	62.6
Day	7	54.0	61.9	46.5	61.4	60.8	59.8	59.0	54.5	51.0	47.8	47.3	46.7	54.0	0.0	54.0
	8	68.8	74.0	56.8	73.7	73.4	72.8	72.4	70.1	67.9	62.3	60.1	57.5	68.8	0.0	68.8
	9	53.5	61.1	46.3	60.3	59.5	58.1	57.4	54.4	51.7	47.9	47.3	46.6	53.5	0.0	53.5
	10	53.0	59.9	47.1	59.2	58.6	57.4	56.6	53.9	51.5	48.4	47.8	47.3	53.0	0.0	53.0
	11	56.2	66.7	43.8	66.4	65.8	63.9	62.4	54.1	48.4	44.9	44.5	44.0	56.2	0.0	56.2
	12	50.2	57.2	43.6	56.5	55.9	54.8	54.0	51.0	48.6	45.2	44.5	43.9	50.2	0.0	50.2
	13	53.4	63.0	45.2	62.4	61.6	59.2	57.8	53.9	49.7	46.3	45.8	45.4	53.4	0.0	53.4
	14	55.4	65.8	46.4	65.4	64.9	63.0	60.2	53.9	50.9	47.7	47.2	46.6	55.4	0.0	55.4
	15	54.2	61.7	48.9	61.2	60.7	59.1	57.7	54.5	52.7	50.1	49.6	49.1	54.2	0.0	54.2
	16	54.9	62.4	48.9	61.8	61.3	59.8	58.6	55.7	53.1	50.1	49.6	49.0	54.9	0.0	54.9
	17	54.3	61.9	49.1	61.4	60.8	59.1	57.7	54.5	52.8	50.3	49.8	49.3	54.3	0.0	54.3
	18	54.7	63.7	48.7	63.4	62.7	60.3	58.5	54.2	52.4	49.8	49.3	48.8	54.7	0.0	54.7
Evening	19	52.9	60.7	47.6	60.4	59.9	58.4	57.0	52.8	51.0	48.6	48.2	47.8	52.9	5.0	57.9
	20	53.0	60.6	46.4	60.2	59.8	58.6	57.3	53.9	50.0	47.5	47.0	46.5	53.0	5.0	58.0
	21	54.3	65.6	44.2	65.4	65.1	62.5	58.3	51.0	48.5	45.4	45.0	44.4	54.3	5.0	59.3
Night	22	46.9	55.8	39.4	55.4	55.0	53.5	51.9	46.4	43.5	40.4	39.9	39.6	46.9	10.0	56.9
	23	44.5	54.1	38.3	53.5	52.6	50.6	48.9	43.7	41.3	39.0	38.7	38.4	44.5	10.0	54.5

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	50.2	57.2	43.6	56.5	55.9	54.8	54.0	51.0	48.4	44.9	44.5	43.9
(7am-7pm)	Max	68.8	74.0	56.8	73.7	73.4	72.8	72.4	70.1	67.9	62.3	60.1	57.5
Energy Average		59.4	Average:		62.8	62.2	60.6	59.4	55.4	52.6	49.2	48.6	47.8
Evening	Min	52.9	60.6	44.2	60.2	59.8	58.4	57.0	51.0	48.5	45.4	45.0	44.4
(7pm-10pm)	Max	54.3	65.6	47.6	65.4	65.1	62.5	58.3	53.9	51.0	48.6	48.2	47.8
Energy Average		53.4	Average:		62.0	61.6	59.8	57.5	52.6	49.8	47.2	46.8	46.2
Night	Min	41.7	47.5	37.4	47.2	46.9	45.9	45.0	42.5	40.3	38.2	37.8	37.5
(10pm-7am)	Max	52.6	59.3	47.6	58.9	58.6	57.4	56.2	53.0	50.9	48.5	48.1	47.7
Energy Average		47.4	Average:		53.8	53.4	51.8	50.2	45.5	43.2	40.7	40.4	40.1

L_{eq} (dBA)		
24-Hour	*Daytime (7am-10pm)*	*Nighttime (10pm-7am)*
56.9	**58.7**	**47.4**

24-Hour CNEL (dBA)

58.6

24-Hour Noise Level Measurement Summary

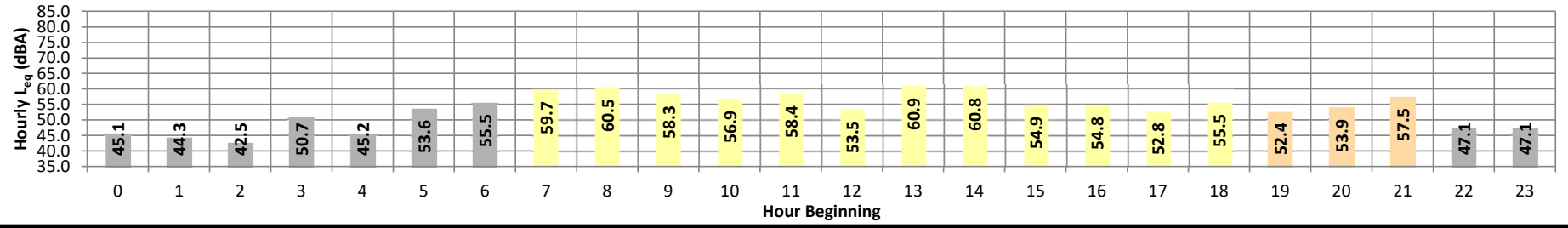
Date: Friday, July 15, 2022
Project: Village at Junipero

Location: L4 -Located west of the Project site along Junipero Road near single-family residence at 27250 Buckaroo Circle.

Meter: Piccolo II

JN: 14854
Analyst: B. Maddux

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	45.1	54.1	39.2	53.8	53.3	50.6	48.4	44.8	42.8	40.7	40.2	39.5	45.1	10.0	55.1
	1	44.3	53.0	37.9	52.6	52.1	49.6	48.0	44.7	41.8	39.1	38.7	38.1	44.3	10.0	54.3
	2	42.5	50.4	36.9	49.9	49.4	47.7	46.3	42.7	40.4	38.1	37.7	37.1	42.5	10.0	52.5
	3	50.7	66.4	37.9	65.2	62.8	56.3	51.3	42.3	40.9	39.3	38.8	38.2	50.7	10.0	60.7
	4	45.2	54.5	40.4	54.1	53.5	50.8	48.2	44.6	42.9	41.4	41.1	40.6	45.2	10.0	55.2
	5	53.6	66.2	44.4	65.7	65.0	60.7	57.3	49.6	47.2	45.2	44.9	44.6	53.6	10.0	63.6
	6	55.5	67.2	47.1	66.5	65.7	62.1	59.3	53.9	50.9	48.1	47.7	47.3	55.5	10.0	65.5
Day	7	59.7	70.2	50.2	69.6	68.8	65.9	64.4	59.3	55.7	51.8	51.2	50.5	59.7	0.0	59.7
	8	60.5	68.9	52.6	68.3	67.7	66.3	65.0	60.5	58.2	54.8	53.9	53.0	60.5	0.0	60.5
	9	58.3	67.0	49.7	66.5	65.9	63.9	62.7	58.4	55.6	51.8	51.1	50.1	58.3	0.0	58.3
	10	56.9	66.3	47.2	65.6	64.7	63.3	61.9	57.1	52.8	48.9	48.1	47.5	56.9	0.0	56.9
	11	58.4	70.3	46.0	69.6	68.5	65.7	64.2	55.8	50.7	47.2	46.8	46.2	58.4	0.0	58.4
	12	53.5	62.1	47.2	61.5	61.0	58.8	57.5	53.7	51.4	48.5	47.9	47.4	53.5	0.0	53.5
	13	60.9	72.2	46.4	71.9	71.5	69.2	67.1	56.2	51.5	47.8	47.3	46.6	60.9	0.0	60.9
	14	60.8	72.7	45.8	72.3	71.7	69.2	67.2	57.0	51.4	47.0	46.6	46.0	60.8	0.0	60.8
	15	54.9	67.9	46.1	67.0	65.8	61.7	58.3	51.7	49.3	47.1	46.7	46.3	54.9	0.0	54.9
	16	54.8	64.3	45.7	63.7	63.1	61.1	59.7	55.2	50.9	46.9	46.4	45.9	54.8	0.0	54.8
	17	52.8	63.4	45.4	63.0	62.4	59.3	57.1	51.2	49.0	46.5	46.0	45.6	52.8	0.0	52.8
	18	55.5	67.5	45.3	66.9	66.0	63.2	60.7	52.8	49.1	46.3	45.9	45.5	55.5	0.0	55.5
Evening	19	52.4	62.3	45.3	61.8	61.1	58.5	56.7	52.1	48.8	46.3	45.9	45.5	52.4	5.0	57.4
	20	53.9	64.0	44.1	63.7	63.2	60.8	59.0	53.5	48.6	45.0	44.6	44.2	53.9	5.0	58.9
	21	57.5	71.7	43.7	71.0	69.8	65.0	60.6	49.4	46.9	44.7	44.3	43.9	57.5	5.0	62.5
Night	22	47.1	58.2	38.8	57.7	57.1	54.0	51.4	45.3	42.6	39.9	39.5	39.0	47.1	10.0	57.1
	23	47.1	55.6	40.2	55.1	54.8	52.3	50.4	47.3	45.3	42.2	41.4	40.5	47.1	10.0	57.1

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day (7am-7pm)	Min	52.8	62.1	45.3	61.5	61.0	58.8	57.1	51.2	49.0	46.3	45.9	45.5
	Max	60.9	72.7	52.6	72.3	71.7	69.2	67.2	60.5	58.2	54.8	53.9	53.0
Energy Average		58.1	Average:		67.2	66.4	64.0	62.1	55.8	52.1	48.7	48.2	47.5
Evening (7pm-10pm)	Min	52.4	62.3	43.7	61.8	61.1	58.5	56.7	49.4	46.9	44.7	44.3	43.9
	Max	57.5	71.7	45.3	71.0	69.8	65.0	60.6	53.5	48.8	46.3	45.9	45.5
Energy Average		55.1	Average:		65.5	64.7	61.4	58.7	51.6	48.1	45.3	45.0	44.5
Night (10pm-7am)	Min	42.5	50.4	36.9	49.9	49.4	47.7	46.3	42.3	40.4	38.1	37.7	37.1
	Max	55.5	67.2	47.1	66.5	65.7	62.1	59.3	53.9	50.9	48.1	47.7	47.3
Energy Average		50.1	Average:		57.9	57.1	53.8	51.2	46.1	43.9	41.6	41.1	40.5

L_{eq} (dBA)		
24-Hour	*Daytime (7am-10pm)*	*Nighttime (10pm-7am)*
56.0	**57.6**	**50.1**

24-Hour CNEL (dBA)

59.2

APPENDIX 7.1:

ON-SITE TRAFFIC NOISE CALCULATIONS

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Backyard No Wall
Road Name: Heritage Lake Drive
Lot No: Bldg. 2

Project Name: Junipero Village
Job Number: 14854
Analyst: Bill Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,400	vehicles
Vehicle Speed:	35	mph
Near/Far Lane Distance:	28	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	37.0	feet
Centerline Dist. to Observer:	50.0	feet
Barrier Distance to Observer:	13.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Barrier Elevation:	0.0	feet
Road Grade:	1.0%	

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.541
Medium Trucks:	33.276
Heavy Trucks:	33.302

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	0.60	1.67	0.00	*-0.57*	0.000	0.000
Medium Trucks:	74.83	-16.64	1.70	0.00	*-0.92*	0.000	0.000
Heavy Trucks:	80.05	-20.59	1.70	0.00	*-2.11*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.4	65.5	63.7	57.7	66.3	66.9
Medium Trucks:	59.9	58.4	52.0	50.5	58.9	59.2
Heavy Trucks:	61.1	59.7	50.7	51.9	60.3	60.4
Vehicle Noise:	68.9	67.1	64.2	59.3	67.9	68.3

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.4	65.5	63.7	57.7	66.3	66.9
Medium Trucks:	59.9	58.4	52.0	50.5	58.9	59.2
Heavy Trucks:	61.1	59.7	50.7	51.9	60.3	60.4
Vehicle Noise:	68.9	67.1	64.2	59.3	67.9	68.3

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Backyard No Wall
Road Name: Heritage Lake Drive
Lot No: Bldg. 1, 3, 17-19, 23, 24

Project Name: Junipero Village
Job Number: 14854
Analyst: Bill Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,400	vehicles
Vehicle Speed:	35	mph
Near/Far Lane Distance:	28	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	37.0	feet
Centerline Dist. to Observer:	82.0	feet
Barrier Distance to Observer:	45.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Barrier Elevation:	0.0	feet
Road Grade:	1.0%	

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	66.731
Medium Trucks:	66.598
Heavy Trucks:	66.611

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	0.60	-1.32	0.00	*-0.09*	0.000	0.000
Medium Trucks:	74.83	-16.64	-1.31	0.00	*-0.33*	0.000	0.000
Heavy Trucks:	80.05	-20.59	-1.31	0.00	*-1.53*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.4	62.5	60.7	54.7	63.3	63.9
Medium Trucks:	56.9	55.4	49.0	47.5	55.9	56.2
Heavy Trucks:	58.1	56.7	47.7	48.9	57.3	57.4
Vehicle Noise:	65.9	64.1	61.2	56.3	64.9	65.3

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.4	62.5	60.7	54.7	63.3	63.9
Medium Trucks:	56.9	55.4	49.0	47.5	55.9	56.2
Heavy Trucks:	58.1	56.7	47.7	48.9	57.3	57.4
Vehicle Noise:	65.9	64.1	61.2	56.3	64.9	65.3

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Backyard No Wall
Road Name: Menifee Road
Lot No: Bldg. 17

Project Name: Junipero Village
Job Number: 14854
Analyst: Bill Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,800	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	58	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	87.0	feet
Centerline Dist. to Observer:	110.0	feet
Barrier Distance to Observer:	23.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Barrier Elevation:	0.0	feet
Road Grade:	1.0%	

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	75.796
Medium Trucks:	75.679
Heavy Trucks:	75.690

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	72.73	1.65	-1.88	0.00	*-0.37*	0.000	0.000
Medium Trucks:	79.85	-15.59	-1.87	0.00	*-0.53*	0.000	0.000
Heavy Trucks:	83.81	-19.55	-1.87	0.00	*-1.01*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	72.5	70.6	68.8	62.8	71.4	72.0
Medium Trucks:	62.4	60.9	54.5	53.0	61.4	61.7
Heavy Trucks:	62.4	61.0	51.9	53.2	61.5	61.7
Vehicle Noise:	73.3	71.4	69.1	63.6	72.2	72.7

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	72.5	70.6	68.8	62.8	71.4	72.0
Medium Trucks:	62.4	60.9	54.5	53.0	61.4	61.7
Heavy Trucks:	62.4	61.0	51.9	53.2	61.5	61.7
Vehicle Noise:	73.3	71.4	69.1	63.6	72.2	72.7

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Backyard No Wall
Road Name: Menifee Road
Lot No: Bldg. 14-16

Project Name: Junipero Village
Job Number: 14854
Analyst: Bill Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,800	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	58	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	87.0	feet
Centerline Dist. to Observer:	125.0	feet
Barrier Distance to Observer:	38.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Barrier Elevation:	0.0	feet
Road Grade:	1.0%	

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	91.652
Medium Trucks:	91.555
Heavy Trucks:	91.564

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	72.73	1.65	-2.70	0.00	*-0.19*	0.000	0.000
Medium Trucks:	79.85	-15.59	-2.70	0.00	*-0.33*	0.000	0.000
Heavy Trucks:	83.81	-19.55	-2.70	0.00	*-0.81*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	71.7	69.8	68.0	62.0	70.6	71.2
Medium Trucks:	61.6	60.1	53.7	52.2	60.6	60.8
Heavy Trucks:	61.6	60.2	51.1	52.4	60.7	60.8
Vehicle Noise:	72.4	70.6	68.3	62.8	71.4	71.9

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	71.7	69.8	68.0	62.0	70.6	71.2
Medium Trucks:	61.6	60.1	53.7	52.2	60.6	60.8
Heavy Trucks:	61.6	60.2	51.1	52.4	60.7	60.8
Vehicle Noise:	72.4	70.6	68.3	62.8	71.4	71.9

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Backyard No Wall
Road Name: Junipero Road
Lot No: Bldg. 1

Project Name: Junipero Village
Job Number: 14854
Analyst: Bill Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,400 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	28 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	54.0 feet
Barrier Distance to Observer:	17.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	37.802
Medium Trucks:	37.567
Heavy Trucks:	37.590

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	59.44	2.06	1.15	0.00	*-0.40*	0.000	0.000
Medium Trucks:	71.09	-15.18	1.17	0.00	*-0.73*	0.000	0.000
Heavy Trucks:	77.24	-19.13	1.17	0.00	*-1.92*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.6	60.7	59.0	52.9	61.6	62.2
Medium Trucks:	57.1	55.6	49.2	47.7	56.1	56.4
Heavy Trucks:	59.3	57.9	48.8	50.1	58.4	58.6
Vehicle Noise:	65.0	63.3	59.8	55.5	64.0	64.5

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.6	60.7	59.0	52.9	61.6	62.2
Medium Trucks:	57.1	55.6	49.2	47.7	56.1	56.4
Heavy Trucks:	59.3	57.9	48.8	50.1	58.4	58.6
Vehicle Noise:	65.0	63.3	59.8	55.5	64.0	64.5

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Backyard No Wall
Road Name: Junipero Road
Lot No: Bldg. 5-7

Project Name: Junipero Village
Job Number: 14854
Analyst: Bill Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,400	vehicles
Vehicle Speed:	25	mph
Near/Far Lane Distance:	28	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	37.0	feet
Centerline Dist. to Observer:	105.0	feet
Barrier Distance to Observer:	68.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Barrier Elevation:	0.0	feet
Road Grade:	1.0%	

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	90.056
Medium Trucks:	89.957
Heavy Trucks:	89.967

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	59.44	2.06	-2.62	0.00	*-0.05*	0.000	0.000
Medium Trucks:	71.09	-15.18	-2.62	0.00	*-0.25*	0.000	0.000
Heavy Trucks:	77.24	-19.13	-2.62	0.00	*-1.46*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	58.9	57.0	55.2	49.2	57.8	58.4
Medium Trucks:	53.3	51.8	45.4	43.9	52.3	52.6
Heavy Trucks:	55.5	54.1	45.0	46.3	54.6	54.8
Vehicle Noise:	61.3	59.6	56.0	51.7	60.3	60.7

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	58.9	57.0	55.2	49.2	57.8	58.4
Medium Trucks:	53.3	51.8	45.4	43.9	52.3	52.6
Heavy Trucks:	55.5	54.1	45.0	46.3	54.6	54.8
Vehicle Noise:	61.3	59.6	56.0	51.7	60.3	60.7

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Backyard No Wall
Road Name: Heritage Lake Drive
Lot No: Tot Lot

Project Name: Junipero Village
Job Number: 14854
Analyst: Bill Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,400	vehicles
Vehicle Speed:	35	mph
Near/Far Lane Distance:	28	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	37.0	feet
Centerline Dist. to Observer:	125.0	feet
Barrier Distance to Observer:	88.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Barrier Elevation:	0.0	feet
Road Grade:	1.0%	

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	110.227
Medium Trucks:	110.147
Heavy Trucks:	110.155

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	0.60	-3.50	0.00	*-0.03*	0.000	0.000
Medium Trucks:	74.83	-16.64	-3.50	0.00	*-0.22*	0.000	0.000
Heavy Trucks:	80.05	-20.59	-3.50	0.00	*-1.42*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.2	60.3	58.5	52.5	61.1	61.7
Medium Trucks:	54.7	53.2	46.8	45.3	53.7	54.0
Heavy Trucks:	56.0	54.5	45.5	46.7	55.1	55.2
Vehicle Noise:	63.7	61.9	59.0	54.1	62.7	63.2

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.2	60.3	58.5	52.5	61.1	61.7
Medium Trucks:	54.7	53.2	46.8	45.3	53.7	54.0
Heavy Trucks:	56.0	54.5	45.5	46.7	55.1	55.2
Vehicle Noise:	63.7	61.9	59.0	54.1	62.7	63.2

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Backyard No Wall
Road Name: Menifee Road
Lot No: Pool Area

Project Name: Junipero Village
Job Number: 14854
Analyst: Bill Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,800	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	58	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	87.0	feet
Centerline Dist. to Observer:	475.0	feet
Barrier Distance to Observer:	388.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Barrier Elevation:	0.0	feet
Road Grade:	1.0%	

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	445.084
Medium Trucks:	445.064
Heavy Trucks:	445.066

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	72.73	1.65	-9.56	0.00	*0.00*	0.000	0.000
Medium Trucks:	79.85	-15.59	-9.56	0.00	*-0.07*	0.000	0.000
Heavy Trucks:	83.81	-19.55	-9.56	0.00	*-0.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.8	62.9	61.1	55.1	63.7	64.3
Medium Trucks:	54.7	53.2	46.8	45.3	53.7	54.0
Heavy Trucks:	54.7	53.3	44.2	45.5	53.9	54.0
Vehicle Noise:	65.6	63.8	61.4	55.9	64.5	65.1

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.8	62.9	61.1	55.1	63.7	64.3
Medium Trucks:	54.7	53.2	46.8	45.3	53.7	54.0
Heavy Trucks:	54.7	53.3	44.2	45.5	53.9	54.0
Vehicle Noise:	65.6	63.8	61.4	55.9	64.5	65.1

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Backyard No Wall
Road Name: Junipero Road
Lot No: Outdoor Amenities

Project Name: Junipero Village
Job Number: 14854
Analyst: Bill Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,400	vehicles
Vehicle Speed:	25	mph
Near/Far Lane Distance:	28	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	37.0	feet
Centerline Dist. to Observer:	150.0	feet
Barrier Distance to Observer:	113.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Barrier Elevation:	0.0	feet
Road Grade:	1.0%	

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	135.370
Medium Trucks:	135.304
Heavy Trucks:	135.311

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	59.44	2.06	-4.39	0.00	*-0.02*	0.000	0.000
Medium Trucks:	71.09	-15.18	-4.39	0.00	*-0.19*	0.000	0.000
Heavy Trucks:	77.24	-19.13	-4.39	0.00	*-1.40*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.1	55.2	53.4	47.4	56.0	56.6
Medium Trucks:	51.5	50.0	43.7	42.1	50.6	50.8
Heavy Trucks:	53.7	52.3	43.3	44.5	52.9	53.0
Vehicle Noise:	59.5	57.8	54.2	50.0	58.5	58.9

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.1	55.2	53.4	47.4	56.0	56.6
Medium Trucks:	51.5	50.0	43.7	42.1	50.6	50.8
Heavy Trucks:	53.7	52.3	43.3	44.5	52.9	53.0
Vehicle Noise:	59.5	57.8	54.2	50.0	58.5	58.9

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Backyard With Wall
Road Name: Heritage Lake Drive
Lot No: Bldg. 2

Project Name: Junipero Village
Job Number: 14854
Analyst: Bill Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,400	vehicles
Vehicle Speed:	35	mph
Near/Far Lane Distance:	28	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	37.0	feet
Centerline Dist. to Observer:	50.0	feet
Barrier Distance to Observer:	13.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Barrier Elevation:	0.0	feet
Road Grade:	1.0%	

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.541
Medium Trucks:	33.276
Heavy Trucks:	33.302

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	0.60	1.67	0.00	*-0.57*	0.000	0.000
Medium Trucks:	74.83	-16.64	1.70	0.00	*-0.92*	0.000	0.000
Heavy Trucks:	80.05	-20.59	1.70	0.00	*-2.11*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.4	65.5	63.7	57.7	66.3	66.9
Medium Trucks:	59.9	58.4	52.0	50.5	58.9	59.2
Heavy Trucks:	61.1	59.7	50.7	51.9	60.3	60.4
Vehicle Noise:	68.9	67.1	64.2	59.3	67.9	68.3

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.4	65.5	63.7	57.7	66.3	66.9
Medium Trucks:	59.9	58.4	52.0	50.5	58.9	59.2
Heavy Trucks:	61.1	59.7	50.7	51.9	60.3	60.4
Vehicle Noise:	68.9	67.1	64.2	59.3	67.9	68.3

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Backyard With Wall
Road Name: Heritage Lake Drive
Lot No: Bldg. 1, 3, 17-19, 23, 24

Project Name: Junipero Village
Job Number: 14854
Analyst: Bill Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,400 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	28 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	82.0 feet
Barrier Distance to Observer:	45.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	66.731
Medium Trucks:	66.598
Heavy Trucks:	66.611

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	0.60	-1.32	0.00	*-0.09*	0.000	0.000
Medium Trucks:	74.83	-16.64	-1.31	0.00	*-0.33*	0.000	0.000
Heavy Trucks:	80.05	-20.59	-1.31	0.00	*-1.53*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.4	62.5	60.7	54.7	63.3	63.9
Medium Trucks:	56.9	55.4	49.0	47.5	55.9	56.2
Heavy Trucks:	58.1	56.7	47.7	48.9	57.3	57.4
Vehicle Noise:	65.9	64.1	61.2	56.3	64.9	65.3

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.4	62.5	60.7	54.7	63.3	63.9
Medium Trucks:	56.9	55.4	49.0	47.5	55.9	56.2
Heavy Trucks:	58.1	56.7	47.7	48.9	57.3	57.4
Vehicle Noise:	65.9	64.1	61.2	56.3	64.9	65.3

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Backyard With Wall
Road Name: Menifee Road
Lot No: Bldg. 17

Project Name: Junipero Village
Job Number: 14854
Analyst: Bill Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,800	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	58	feet

Site Data

Barrier Height:	**6.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	87.0	feet
Centerline Dist. to Observer:	110.0	feet
Barrier Distance to Observer:	23.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Barrier Elevation:	0.0	feet
Road Grade:	1.0%	

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	73.608
Medium Trucks:	73.388
Heavy Trucks:	73.291

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	72.73	1.65	-1.75	0.00	*0.17*	-6.560	-9.560
Medium Trucks:	79.85	-15.59	-1.74	0.00	*0.09*	-5.900	-8.900
Heavy Trucks:	83.81	-19.55	-1.73	0.00	*0.00*	-4.900	-7.900

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	72.6	70.7	69.0	62.9	71.5	72.1
Medium Trucks:	62.5	61.0	54.7	53.1	61.6	61.8
Heavy Trucks:	62.5	61.1	52.1	53.3	61.7	61.8
Vehicle Noise:	73.4	71.6	69.2	63.8	72.3	72.9

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.1	64.2	62.4	56.3	65.0	65.6
Medium Trucks:	56.6	55.1	48.8	47.2	55.7	55.9
Heavy Trucks:	57.6	56.2	47.2	48.4	56.8	56.9
Vehicle Noise:	67.1	65.3	62.7	57.4	66.0	66.5

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Backyard With Wall
Road Name: Menifee Road
Lot No: Bldg. 14-16

Project Name: Junipero Village
Job Number: 14854
Analyst: Bill Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,800	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	58	feet

Site Data

Barrier Height:	**6.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	87.0	feet
Centerline Dist. to Observer:	125.0	feet
Barrier Distance to Observer:	38.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Barrier Elevation:	0.0	feet
Road Grade:	1.0%	

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	88.600
Medium Trucks:	88.379
Heavy Trucks:	91.564

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	72.73	1.65	-2.55	0.00	*0.19*	-6.720	-9.720
Medium Trucks:	79.85	-15.59	-2.54	0.00	*0.09*	-5.900	-8.900
Heavy Trucks:	83.81	-19.55	-2.70	0.00	*0.00*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	71.8	69.9	68.2	62.1	70.7	71.3
Medium Trucks:	61.7	60.2	53.9	52.3	60.8	61.0
Heavy Trucks:	61.6	60.2	51.1	52.4	60.7	60.8
Vehicle Noise:	72.6	70.8	68.4	62.9	71.5	72.1

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.1	63.2	61.4	55.4	64.0	64.6
Medium Trucks:	55.8	54.3	48.0	46.4	54.9	55.1
Heavy Trucks:	61.6	60.2	51.1	52.4	60.7	60.8
Vehicle Noise:	67.0	65.3	62.0	57.5	66.0	66.5

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Backyard With Wall
Road Name: Junipero Road
Lot No: Bldg. 1

Project Name: Junipero Village
Job Number: 14854
Analyst: Bill Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,400 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	28 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	54.0 feet
Barrier Distance to Observer:	17.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	37.802
Medium Trucks:	37.567
Heavy Trucks:	37.590

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	59.44	2.06	1.15	0.00	*-0.40*	0.000	0.000
Medium Trucks:	71.09	-15.18	1.17	0.00	*-0.73*	0.000	0.000
Heavy Trucks:	77.24	-19.13	1.17	0.00	*-1.92*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.6	60.7	59.0	52.9	61.6	62.2
Medium Trucks:	57.1	55.6	49.2	47.7	56.1	56.4
Heavy Trucks:	59.3	57.9	48.8	50.1	58.4	58.6
Vehicle Noise:	65.0	63.3	59.8	55.5	64.0	64.5

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.6	60.7	59.0	52.9	61.6	62.2
Medium Trucks:	57.1	55.6	49.2	47.7	56.1	56.4
Heavy Trucks:	59.3	57.9	48.8	50.1	58.4	58.6
Vehicle Noise:	65.0	63.3	59.8	55.5	64.0	64.5

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Backyard With Wall
Road Name: Junipero Road
Lot No: Bldg. 5-7

Project Name: Junipero Village
Job Number: 14854
Analyst: Bill Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,400 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	28 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	105.0 feet
Barrier Distance to Observer:	68.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	90.056
Medium Trucks:	89.957
Heavy Trucks:	89.967

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	59.44	2.06	-2.62	0.00	*-0.05*	0.000	0.000
Medium Trucks:	71.09	-15.18	-2.62	0.00	*-0.25*	0.000	0.000
Heavy Trucks:	77.24	-19.13	-2.62	0.00	*-1.46*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	58.9	57.0	55.2	49.2	57.8	58.4
Medium Trucks:	53.3	51.8	45.4	43.9	52.3	52.6
Heavy Trucks:	55.5	54.1	45.0	46.3	54.6	54.8
Vehicle Noise:	61.3	59.6	56.0	51.7	60.3	60.7

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	58.9	57.0	55.2	49.2	57.8	58.4
Medium Trucks:	53.3	51.8	45.4	43.9	52.3	52.6
Heavy Trucks:	55.5	54.1	45.0	46.3	54.6	54.8
Vehicle Noise:	61.3	59.6	56.0	51.7	60.3	60.7

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Backyard With Wall
Road Name: Heritage Lake Drive
Lot No: Tot Lot

Project Name: Junipero Village
Job Number: 14854
Analyst: Bill Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,400	vehicles
Vehicle Speed:	35	mph
Near/Far Lane Distance:	28	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	37.0	feet
Centerline Dist. to Observer:	125.0	feet
Barrier Distance to Observer:	88.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Barrier Elevation:	0.0	feet
Road Grade:	1.0%	

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	110.227
Medium Trucks:	110.147
Heavy Trucks:	110.155

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	0.60	-3.50	0.00	*-0.03*	0.000	0.000
Medium Trucks:	74.83	-16.64	-3.50	0.00	*-0.22*	0.000	0.000
Heavy Trucks:	80.05	-20.59	-3.50	0.00	*-1.42*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.2	60.3	58.5	52.5	61.1	61.7
Medium Trucks:	54.7	53.2	46.8	45.3	53.7	54.0
Heavy Trucks:	56.0	54.5	45.5	46.7	55.1	55.2
Vehicle Noise:	63.7	61.9	59.0	54.1	62.7	63.2

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.2	60.3	58.5	52.5	61.1	61.7
Medium Trucks:	54.7	53.2	46.8	45.3	53.7	54.0
Heavy Trucks:	56.0	54.5	45.5	46.7	55.1	55.2
Vehicle Noise:	63.7	61.9	59.0	54.1	62.7	63.2

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Backyard With Wall
Road Name: Menifee Road
Lot No: Pool Area

Project Name: Junipero Village
Job Number: 14854
Analyst: Bill Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,800	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	58	feet

Site Data

Barrier Height:	**6.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	87.0	feet
Centerline Dist. to Observer:	475.0	feet
Barrier Distance to Observer:	388.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Barrier Elevation:	0.0	feet
Road Grade:	1.0%	

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	438.588
Medium Trucks:	438.367
Heavy Trucks:	445.066

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	72.73	1.65	-9.50	0.00	*0.28*	-7.360	-10.360
Medium Trucks:	79.85	-15.59	-9.50	0.00	*0.11*	-6.080	-9.080
Heavy Trucks:	83.81	-19.55	-9.56	0.00	*-0.03*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.9	63.0	61.2	55.2	63.8	64.4
Medium Trucks:	54.8	53.3	46.9	45.4	53.8	54.0
Heavy Trucks:	54.7	53.3	44.2	45.5	53.9	54.0
Vehicle Noise:	65.6	63.8	61.5	56.0	64.6	65.1

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.5	55.6	53.9	47.8	56.4	57.0
Medium Trucks:	48.7	47.2	40.8	39.3	47.7	48.0
Heavy Trucks:	54.7	53.3	44.2	45.5	53.9	54.0
Vehicle Noise:	59.7	58.0	54.5	50.2	58.7	59.1

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Backyard With Wall
Road Name: Junipero Road
Lot No: Outdoor Amenities

Project Name: Junipero Village
Job Number: 14854
Analyst: Bill Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,400 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	28 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	150.0 feet
Barrier Distance to Observer:	113.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	135.370
Medium Trucks:	135.304
Heavy Trucks:	135.311

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	59.44	2.06	-4.39	0.00	*-0.02*	0.000	0.000
Medium Trucks:	71.09	-15.18	-4.39	0.00	*-0.19*	0.000	0.000
Heavy Trucks:	77.24	-19.13	-4.39	0.00	*-1.40*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.1	55.2	53.4	47.4	56.0	56.6
Medium Trucks:	51.5	50.0	43.7	42.1	50.6	50.8
Heavy Trucks:	53.7	52.3	43.3	44.5	52.9	53.0
Vehicle Noise:	59.5	57.8	54.2	50.0	58.5	58.9

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.1	55.2	53.4	47.4	56.0	56.6
Medium Trucks:	51.5	50.0	43.7	42.1	50.6	50.8
Heavy Trucks:	53.7	52.3	43.3	44.5	52.9	53.0
Vehicle Noise:	59.5	57.8	54.2	50.0	58.5	58.9

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: First Floor With Wall
Road Name: Heritage Lake Drive
Lot No: Bldg. 2

Project Name: Junipero Village
Job Number: 14854
Analyst: Bill Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,400	vehicles
Vehicle Speed:	35	mph
Near/Far Lane Distance:	28	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	37.0	feet
Centerline Dist. to Observer:	52.0	feet
Barrier Distance to Observer:	15.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Barrier Elevation:	0.0	feet
Road Grade:	1.0%	

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	35.679
Medium Trucks:	35.430
Heavy Trucks:	35.455

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	0.60	1.40	0.00	*-0.47*	0.000	0.000
Medium Trucks:	74.83	-16.64	1.43	0.00	*-0.81*	0.000	0.000
Heavy Trucks:	80.05	-20.59	1.42	0.00	*-2.00*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.1	65.2	63.4	57.4	66.0	66.6
Medium Trucks:	59.6	58.1	51.7	50.2	58.7	58.9
Heavy Trucks:	60.9	59.5	50.4	51.7	60.0	60.2
Vehicle Noise:	68.6	66.9	63.9	59.0	67.6	68.1

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.1	65.2	63.4	57.4	66.0	66.6
Medium Trucks:	59.6	58.1	51.7	50.2	58.7	58.9
Heavy Trucks:	60.9	59.5	50.4	51.7	60.0	60.2
Vehicle Noise:	68.6	66.9	63.9	59.0	67.6	68.1

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: First Floor With Wall
Road Name: Heritage Lake Drive
Lot No: Bldg. 1, 3, 17-19, 23, 24

Project Name: Junipero Village
Job Number: 14854
Analyst: Bill Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,400	vehicles
Vehicle Speed:	35	mph
Near/Far Lane Distance:	28	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	37.0	feet
Centerline Dist. to Observer:	84.0	feet
Barrier Distance to Observer:	47.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Barrier Elevation:	0.0	feet
Road Grade:	1.0%	

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	68.768
Medium Trucks:	68.639
Heavy Trucks:	68.652

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	0.60	-1.45	0.00	*-0.08*	0.000	0.000
Medium Trucks:	74.83	-16.64	-1.44	0.00	*-0.32*	0.000	0.000
Heavy Trucks:	80.05	-20.59	-1.45	0.00	*-1.52*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.3	62.4	60.6	54.5	63.2	63.8
Medium Trucks:	56.7	55.2	48.9	47.3	55.8	56.0
Heavy Trucks:	58.0	56.6	47.6	48.8	57.2	57.3
Vehicle Noise:	65.8	64.0	61.1	56.2	64.7	65.2

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.3	62.4	60.6	54.5	63.2	63.8
Medium Trucks:	56.7	55.2	48.9	47.3	55.8	56.0
Heavy Trucks:	58.0	56.6	47.6	48.8	57.2	57.3
Vehicle Noise:	65.8	64.0	61.1	56.2	64.7	65.2

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: First Floor With Wall
Road Name: Menifee Road
Lot No: Bldg. 17

Project Name: Junipero Village
Job Number: 14854
Analyst: Bill Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,800 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	87.0 feet
Centerline Dist. to Observer:	115.0 feet
Barrier Distance to Observer:	28.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	78.604
Medium Trucks:	78.384
Heavy Trucks:	78.287

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	72.73	1.65	-2.03	0.00	*0.18*	-6.640	-9.640
Medium Trucks:	79.85	-15.59	-2.02	0.00	*0.09*	-5.900	-8.900
Heavy Trucks:	83.81	-19.55	-2.02	0.00	*0.00*	-4.900	-7.900

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	72.3	70.4	68.7	62.6	71.2	71.8
Medium Trucks:	62.2	60.7	54.4	52.8	61.3	61.5
Heavy Trucks:	62.3	60.8	51.8	53.0	61.4	61.5
Vehicle Noise:	73.1	71.3	68.9	63.5	72.1	72.6

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.7	63.8	62.0	56.0	64.6	65.2
Medium Trucks:	56.3	54.8	48.5	46.9	55.4	55.6
Heavy Trucks:	57.4	55.9	46.9	48.1	56.5	56.6
Vehicle Noise:	66.7	64.9	62.3	57.1	65.7	66.2

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: First Floor With Wall
Road Name: Menifee Road
Lot No: Bldg. 14-16

Project Name: Junipero Village
Job Number: 14854
Analyst: Bill Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,800 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	87.0 feet
Centerline Dist. to Observer:	132.0 feet
Barrier Distance to Observer:	45.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	95.598
Medium Trucks:	95.377
Heavy Trucks:	98.879

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	72.73	1.65	-2.88	0.00	*0.20*	-6.800	-9.800
Medium Trucks:	79.85	-15.59	-2.87	0.00	*0.09*	-5.900	-8.900
Heavy Trucks:	83.81	-19.55	-3.03	0.00	*0.00*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	71.5	69.6	67.8	61.8	70.4	71.0
Medium Trucks:	61.4	59.9	53.5	52.0	60.4	60.7
Heavy Trucks:	61.2	59.8	50.8	52.0	60.4	60.5
Vehicle Noise:	72.3	70.4	68.1	62.6	71.2	71.7

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.7	62.8	61.0	55.0	63.6	64.2
Medium Trucks:	55.5	54.0	47.6	46.1	54.5	54.8
Heavy Trucks:	61.2	59.8	50.8	52.0	60.4	60.5
Vehicle Noise:	66.7	64.9	61.6	57.1	65.6	66.1

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: First Floor With Wall
Road Name: Junipero Road
Lot No: Bldg. 1

Project Name: Junipero Village
Job Number: 14854
Analyst: Bill Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,400 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	28 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	55.0 feet
Barrier Distance to Observer:	18.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	38.859
Medium Trucks:	38.630
Heavy Trucks:	38.653

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	59.44	2.06	1.03	0.00	*-0.37*	0.000	0.000
Medium Trucks:	71.09	-15.18	1.05	0.00	*-0.69*	0.000	0.000
Heavy Trucks:	77.24	-19.13	1.05	0.00	*-1.88*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.5	60.6	58.9	52.8	61.4	62.0
Medium Trucks:	57.0	55.5	49.1	47.5	56.0	56.2
Heavy Trucks:	59.2	57.7	48.7	50.0	58.3	58.4
Vehicle Noise:	64.9	63.2	59.7	55.4	63.9	64.3

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.5	60.6	58.9	52.8	61.4	62.0
Medium Trucks:	57.0	55.5	49.1	47.5	56.0	56.2
Heavy Trucks:	59.2	57.7	48.7	50.0	58.3	58.4
Vehicle Noise:	64.9	63.2	59.7	55.4	63.9	64.3

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: First Floor With Wall
Road Name: Junipero Road
Lot No: Bldg. 5-7

Project Name: Junipero Village
Job Number: 14854
Analyst: Bill Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,400	vehicles
Vehicle Speed:	25	mph
Near/Far Lane Distance:	28	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	37.0	feet
Centerline Dist. to Observer:	110.0	feet
Barrier Distance to Observer:	73.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Barrier Elevation:	0.0	feet
Road Grade:	1.0%	

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	95.105
Medium Trucks:	95.012
Heavy Trucks:	95.021

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	59.44	2.06	-2.86	0.00	*-0.04*	0.000	0.000
Medium Trucks:	71.09	-15.18	-2.86	0.00	*-0.24*	0.000	0.000
Heavy Trucks:	77.24	-19.13	-2.86	0.00	*-1.45*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	58.6	56.7	55.0	48.9	57.5	58.1
Medium Trucks:	53.1	51.5	45.2	43.6	52.1	52.3
Heavy Trucks:	55.3	53.8	44.8	46.0	54.4	54.5
Vehicle Noise:	61.0	59.3	55.8	51.5	60.0	60.4

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	58.6	56.7	55.0	48.9	57.5	58.1
Medium Trucks:	53.1	51.5	45.2	43.6	52.1	52.3
Heavy Trucks:	55.3	53.8	44.8	46.0	54.4	54.5
Vehicle Noise:	61.0	59.3	55.8	51.5	60.0	60.4

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: First Floor With Wall
Road Name: Heritage Lake Drive
Lot No: Tot Lot

Project Name: Junipero Village
Job Number: 14854
Analyst: Bill Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,400 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	28 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	125.0 feet
Barrier Distance to Observer:	88.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	110.227
Medium Trucks:	110.147
Heavy Trucks:	110.155

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	0.60	-3.50	0.00	*-0.03*	0.000	0.000
Medium Trucks:	74.83	-16.64	-3.50	0.00	*-0.22*	0.000	0.000
Heavy Trucks:	80.05	-20.59	-3.50	0.00	*-1.42*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.2	60.3	58.5	52.5	61.1	61.7
Medium Trucks:	54.7	53.2	46.8	45.3	53.7	54.0
Heavy Trucks:	56.0	54.5	45.5	46.7	55.1	55.2
Vehicle Noise:	63.7	61.9	59.0	54.1	62.7	63.2

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.2	60.3	58.5	52.5	61.1	61.7
Medium Trucks:	54.7	53.2	46.8	45.3	53.7	54.0
Heavy Trucks:	56.0	54.5	45.5	46.7	55.1	55.2
Vehicle Noise:	63.7	61.9	59.0	54.1	62.7	63.2

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: First Floor With Wall
Road Name: Menifee Road
Lot No: Pool Area

Project Name: Junipero Village
Job Number: 14854
Analyst: Bill Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,800	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	58	feet

Site Data

Barrier Height:	**6.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	87.0	feet
Centerline Dist. to Observer:	475.0	feet
Barrier Distance to Observer:	388.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Barrier Elevation:	0.0	feet
Road Grade:	1.0%	

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	438.588
Medium Trucks:	438.367
Heavy Trucks:	445.066

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	72.73	1.65	-9.50	0.00	*0.28*	-7.360	-10.360
Medium Trucks:	79.85	-15.59	-9.50	0.00	*0.11*	-6.080	-9.080
Heavy Trucks:	83.81	-19.55	-9.56	0.00	*-0.03*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.9	63.0	61.2	55.2	63.8	64.4
Medium Trucks:	54.8	53.3	46.9	45.4	53.8	54.0
Heavy Trucks:	54.7	53.3	44.2	45.5	53.9	54.0
Vehicle Noise:	65.6	63.8	61.5	56.0	64.6	65.1

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.5	55.6	53.9	47.8	56.4	57.0
Medium Trucks:	48.7	47.2	40.8	39.3	47.7	48.0
Heavy Trucks:	54.7	53.3	44.2	45.5	53.9	54.0
Vehicle Noise:	59.7	58.0	54.5	50.2	58.7	59.1

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: First Floor With Wall
Road Name: Junipero Road
Lot No: Outdoor Amenities

Project Name: Junipero Village
Job Number: 14854
Analyst: Bill Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,400 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	28 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	475.0 feet
Barrier Distance to Observer:	438.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	460.814
Medium Trucks:	460.795
Heavy Trucks:	460.797

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	59.44	2.06	-9.71	0.00	*0.00*	0.000	0.000
Medium Trucks:	71.09	-15.18	-9.71	0.00	*-0.13*	0.000	0.000
Heavy Trucks:	77.24	-19.13	-9.71	0.00	*-1.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	51.8	49.9	48.1	42.1	50.7	51.3
Medium Trucks:	46.2	44.7	38.3	36.8	45.2	45.5
Heavy Trucks:	48.4	47.0	37.9	39.2	47.5	47.7
Vehicle Noise:	54.2	52.5	48.9	44.6	53.2	53.6

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	51.8	49.9	48.1	42.1	50.7	51.3
Medium Trucks:	46.2	44.7	38.3	36.8	45.2	45.5
Heavy Trucks:	48.4	47.0	37.9	39.2	47.5	47.7
Vehicle Noise:	54.2	52.5	48.9	44.6	53.2	53.6

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Second Floor With Wall
Road Name: Heritage Lake Drive
Lot No: Bldg. 2

Project Name: Junipero Village
Job Number: 14854
Analyst: Bill Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,400	vehicles
Vehicle Speed:	35	mph
Near/Far Lane Distance:	28	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	37.0	feet
Centerline Dist. to Observer:	52.0	feet
Barrier Distance to Observer:	15.0	feet
Observer Height (Above Pad):	14.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Barrier Elevation:	0.0	feet
Road Grade:	1.0%	

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	38.000
Medium Trucks:	37.215
Heavy Trucks:	35.832

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	0.60	1.12	0.00	*-2.96*	0.000	0.000
Medium Trucks:	74.83	-16.64	1.21	0.00	*-3.79*	0.000	0.000
Heavy Trucks:	80.05	-20.59	1.38	0.00	*-6.26*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.8	64.9	63.2	57.1	65.7	66.3
Medium Trucks:	59.4	57.9	51.5	50.0	58.5	58.7
Heavy Trucks:	60.8	59.4	50.4	51.6	60.0	60.1
Vehicle Noise:	68.4	66.6	63.7	58.8	67.4	67.8

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.8	64.9	63.2	57.1	65.7	66.3
Medium Trucks:	59.4	57.9	51.5	50.0	58.5	58.7
Heavy Trucks:	60.8	59.4	50.4	51.6	60.0	60.1
Vehicle Noise:	68.4	66.6	63.7	58.8	67.4	67.8

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Second Floor With Wall
Road Name: Heritage Lake Drive
Lot No: Bldg. 1, 3, 17-19, 23, 24

Project Name: Junipero Village
Job Number: 14854
Analyst: Bill Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,400 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	28 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	84.0 feet
Barrier Distance to Observer:	47.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	70.000
Medium Trucks:	69.577
Heavy Trucks:	68.847

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	0.60	-1.53	0.00	*-0.64*	0.000	0.000
Medium Trucks:	74.83	-16.64	-1.50	0.00	*-1.16*	0.000	0.000
Heavy Trucks:	80.05	-20.59	-1.46	0.00	*-3.07*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.2	62.3	60.5	54.5	63.1	63.7
Medium Trucks:	56.7	55.2	48.8	47.3	55.7	56.0
Heavy Trucks:	58.0	56.6	47.5	48.8	57.1	57.3
Vehicle Noise:	65.7	63.9	61.0	56.1	64.7	65.1

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.2	62.3	60.5	54.5	63.1	63.7
Medium Trucks:	56.7	55.2	48.8	47.3	55.7	56.0
Heavy Trucks:	58.0	56.6	47.5	48.8	57.1	57.3
Vehicle Noise:	65.7	63.9	61.0	56.1	64.7	65.1

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Second Floor With Wall
Road Name: Menifee Road
Lot No: Bldg. 17

Project Name: Junipero Village
Job Number: 14854
Analyst: Bill Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,800 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	87.0 feet
Centerline Dist. to Observer:	115.0 feet
Barrier Distance to Observer:	28.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	82.164
Medium Trucks:	81.804
Heavy Trucks:	81.185

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	72.73	1.65	-2.23	0.00	*-0.29*	0.000	0.000
Medium Trucks:	79.85	-15.59	-2.21	0.00	*-0.44*	0.000	0.000
Heavy Trucks:	83.81	-19.55	-2.17	0.00	*-0.93*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	72.1	70.3	68.5	62.4	71.1	71.7
Medium Trucks:	62.1	60.5	54.2	52.6	61.1	61.3
Heavy Trucks:	62.1	60.7	51.6	52.9	61.2	61.4
Vehicle Noise:	72.9	71.1	68.7	63.3	71.9	72.4

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	72.1	70.3	68.5	62.4	71.1	71.7
Medium Trucks:	62.1	60.5	54.2	52.6	61.1	61.3
Heavy Trucks:	62.1	60.7	51.6	52.9	61.2	61.4
Vehicle Noise:	72.9	71.1	68.7	63.3	71.9	72.4

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Second Floor With Wall
Road Name: Menifee Road
Lot No: Bldg. 14-16

Project Name: Junipero Village
Job Number: 14854
Analyst: Bill Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,800 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	87.0 feet
Centerline Dist. to Observer:	132.0 feet
Barrier Distance to Observer:	45.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	99.820
Medium Trucks:	99.524
Heavy Trucks:	99.015

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	72.73	1.65	-3.07	0.00	*-0.07*	0.000	0.000
Medium Trucks:	79.85	-15.59	-3.06	0.00	*-0.16*	0.000	0.000
Heavy Trucks:	83.81	-19.55	-3.04	0.00	*-0.55*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	71.3	69.4	67.6	61.6	70.2	70.8
Medium Trucks:	61.2	59.7	53.3	51.8	60.3	60.5
Heavy Trucks:	61.2	59.8	50.8	52.0	60.4	60.5
Vehicle Noise:	72.1	70.3	67.9	62.4	71.0	71.6

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	71.3	69.4	67.6	61.6	70.2	70.8
Medium Trucks:	61.2	59.7	53.3	51.8	60.3	60.5
Heavy Trucks:	61.2	59.8	50.8	52.0	60.4	60.5
Vehicle Noise:	72.1	70.3	67.9	62.4	71.0	71.6

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Second Floor With Wall
Road Name: Junipero Road
Lot No: Bldg. 1

Project Name: Junipero Village
Job Number: 14854
Analyst: Bill Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,400 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	28 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	55.0 feet
Barrier Distance to Observer:	18.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	41.000
Medium Trucks:	40.274
Heavy Trucks:	38.999

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	59.44	2.06	0.79	0.00	*-2.43*	0.000	0.000
Medium Trucks:	71.09	-15.18	0.87	0.00	*-3.21*	0.000	0.000
Heavy Trucks:	77.24	-19.13	1.01	0.00	*-5.60*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.3	60.4	58.6	52.6	61.2	61.8
Medium Trucks:	56.8	55.3	48.9	47.4	55.8	56.1
Heavy Trucks:	59.1	57.7	48.7	49.9	58.3	58.4
Vehicle Noise:	64.8	63.1	59.4	55.2	63.8	64.2

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.3	60.4	58.6	52.6	61.2	61.8
Medium Trucks:	56.8	55.3	48.9	47.4	55.8	56.1
Heavy Trucks:	59.1	57.7	48.7	49.9	58.3	58.4
Vehicle Noise:	64.8	63.1	59.4	55.2	63.8	64.2

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Second Floor With Wall
Road Name: Junipero Road
Lot No: Bldg. 5-7

Project Name: Junipero Village
Job Number: 14854
Analyst: Bill Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,400	vehicles
Vehicle Speed:	25	mph
Near/Far Lane Distance:	28	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	37.0	feet
Centerline Dist. to Observer:	110.0	feet
Barrier Distance to Observer:	73.0	feet
Observer Height (Above Pad):	14.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Barrier Elevation:	0.0	feet
Road Grade:	1.0%	

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	96.000
Medium Trucks:	95.692
Heavy Trucks:	95.163

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	59.44	2.06	-2.90	0.00	*-0.31*	0.000	0.000
Medium Trucks:	71.09	-15.18	-2.89	0.00	*-0.72*	0.000	0.000
Heavy Trucks:	77.24	-19.13	-2.86	0.00	*-2.44*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	58.6	56.7	54.9	48.9	57.5	58.1
Medium Trucks:	53.0	51.5	45.2	43.6	52.1	52.3
Heavy Trucks:	55.2	53.8	44.8	46.0	54.4	54.5
Vehicle Noise:	61.0	59.3	55.7	51.5	60.0	60.4

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	58.6	56.7	54.9	48.9	57.5	58.1
Medium Trucks:	53.0	51.5	45.2	43.6	52.1	52.3
Heavy Trucks:	55.2	53.8	44.8	46.0	54.4	54.5
Vehicle Noise:	61.0	59.3	55.7	51.5	60.0	60.4

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Second Floor With Wall
Road Name: Heritage Lake Drive
Lot No: Tot Lot

Project Name: Junipero Village
Job Number: 14854
Analyst: Bill Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,400	vehicles
Vehicle Speed:	35	mph
Near/Far Lane Distance:	28	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	37.0	feet
Centerline Dist. to Observer:	125.0	feet
Barrier Distance to Observer:	88.0	feet
Observer Height (Above Pad):	14.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Barrier Elevation:	0.0	feet
Road Grade:	1.0%	

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	111.000
Medium Trucks:	110.734
Heavy Trucks:	110.277

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	0.60	-3.53	0.00	*-0.22*	0.000	0.000
Medium Trucks:	74.83	-16.64	-3.52	0.00	*-0.59*	0.000	0.000
Heavy Trucks:	80.05	-20.59	-3.50	0.00	*-2.25*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.2	60.3	58.5	52.5	61.1	61.7
Medium Trucks:	54.7	53.2	46.8	45.3	53.7	53.9
Heavy Trucks:	55.9	54.5	45.5	46.7	55.1	55.2
Vehicle Noise:	63.7	61.9	59.0	54.1	62.7	63.1

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.2	60.3	58.5	52.5	61.1	61.7
Medium Trucks:	54.7	53.2	46.8	45.3	53.7	53.9
Heavy Trucks:	55.9	54.5	45.5	46.7	55.1	55.2
Vehicle Noise:	63.7	61.9	59.0	54.1	62.7	63.1

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Second Floor With Wall
Road Name: Menifee Road
Lot No: Pool Area

Project Name: Junipero Village
Job Number: 14854
Analyst: Bill Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,800 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	87.0 feet
Centerline Dist. to Observer:	475.0 feet
Barrier Distance to Observer:	388.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	438.669
Medium Trucks:	438.448
Heavy Trucks:	445.097

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	72.73	1.65	-9.50	0.00	*0.17*	-6.560	-9.560
Medium Trucks:	79.85	-15.59	-9.50	0.00	*0.05*	-5.500	-8.500
Heavy Trucks:	83.81	-19.55	-9.56	0.00	*-0.08*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.9	63.0	61.2	55.2	63.8	64.4
Medium Trucks:	54.8	53.3	46.9	45.4	53.8	54.0
Heavy Trucks:	54.7	53.3	44.2	45.5	53.9	54.0
Vehicle Noise:	65.6	63.8	61.5	56.0	64.6	65.1

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	58.3	56.4	54.6	48.6	57.2	57.8
Medium Trucks:	49.3	47.8	41.4	39.9	48.3	48.5
Heavy Trucks:	54.7	53.3	44.2	45.5	53.9	54.0
Vehicle Noise:	60.2	58.5	55.2	50.7	59.2	59.7

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Second Floor With Wall
Road Name: Junipero Road
Lot No: Outdoor Amenities

Project Name: Junipero Village
Job Number: 14854
Analyst: Bill Maddux

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,400 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	28 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	475.0 feet
Barrier Distance to Observer:	438.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	461.000
Medium Trucks:	460.936
Heavy Trucks:	460.826

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	59.44	2.06	-9.72	0.00	*-0.01*	0.000	0.000
Medium Trucks:	71.09	-15.18	-9.72	0.00	*-0.19*	0.000	0.000
Heavy Trucks:	77.24	-19.13	-9.71	0.00	*-1.51*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	51.8	49.9	48.1	42.1	50.7	51.3
Medium Trucks:	46.2	44.7	38.3	36.8	45.2	45.5
Heavy Trucks:	48.4	47.0	37.9	39.2	47.5	47.7
Vehicle Noise:	54.2	52.5	48.9	44.6	53.2	53.6

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	51.8	49.9	48.1	42.1	50.7	51.3
Medium Trucks:	46.2	44.7	38.3	36.8	45.2	45.5
Heavy Trucks:	48.4	47.0	37.9	39.2	47.5	47.7
Vehicle Noise:	54.2	52.5	48.9	44.6	53.2	53.6

APPENDIX 8.1:

OFF-SITE TRAFFIC NOISE LEVEL CALCULATIONS

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: McCall Blvd.
Road Segment: w/o I-215SB Off Ramp

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,796 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,118 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	59.0 feet
Centerline Dist. to Observer:	59.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	64.30	4.08	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	75.75	-13.16	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	81.57	-17.11	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.6	65.4	64.1	58.1	66.5	67.1
Medium Trucks:	60.8	57.7	50.2	59.0	65.1	65.2
Heavy Trucks:	62.7	59.4	56.0	60.7	66.9	67.0
Vehicle Noise:	68.8	66.9	64.9	64.2	71.0	71.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	69	148	320	689
CNEL:	72	155	333	718

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: McCall Blvd.
Road Segment: e/o I-215NB Off Ramp

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,796 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,118 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	2.53	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-14.71	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-18.66	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.5	69.4	68.1	62.0	70.5	71.1
Medium Trucks:	64.1	61.1	53.6	62.3	68.5	68.5
Heavy Trucks:	64.5	61.3	57.9	62.6	68.8	68.9
Vehicle Noise:	72.2	70.5	68.6	67.1	74.1	74.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	120	259	558	1,202
CNEL:	126	272	586	1,262

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: McCall Blvd.
Road Segment: e/o Encanto Dr.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,594 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,524 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	1.61	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-15.63	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-19.58	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.6	68.5	67.1	61.1	69.5	70.2
Medium Trucks:	63.2	60.1	52.6	61.4	67.6	67.6
Heavy Trucks:	63.6	60.4	57.0	61.7	67.9	68.0
Vehicle Noise:	71.3	69.6	67.7	66.2	73.2	73.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	104	225	485	1,044
CNEL:	110	236	509	1,096

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: McCall Blvd.
Road Segment: e/o Sherman Rd.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,070	vehicles
Peak Hour Percentage:	8.25%	
Peak Hour Volume:	2,398	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	58	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	64.0	feet
Centerline Dist. to Observer:	64.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	1.39	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-15.85	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-19.80	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.4	68.2	66.9	60.9	69.3	70.0
Medium Trucks:	63.0	59.9	52.4	61.2	67.3	67.4
Heavy Trucks:	63.4	60.2	56.8	61.4	67.6	67.7
Vehicle Noise:	71.1	69.4	67.5	66.0	73.0	73.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	101	217	468	1,009
CNEL:	106	228	492	1,060

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: McCall Blvd.
Road Segment: e/o Hillpointe Dr.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,814 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,377 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	1.35	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-15.89	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-19.84	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.4	68.2	66.9	60.9	69.3	69.9
Medium Trucks:	62.9	59.9	52.4	61.1	67.3	67.3
Heavy Trucks:	63.4	60.2	56.8	61.4	67.6	67.7
Vehicle Noise:	71.1	69.3	67.4	65.9	72.9	73.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	100	216	466	1,003
CNEL:	105	227	489	1,053

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: McCall Blvd.
Road Segment: e/o Antelope Rd.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,490	vehicles
Peak Hour Percentage:	8.25%	
Peak Hour Volume:	2,103	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	58	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	64.0	feet
Centerline Dist. to Observer:	64.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	0.82	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-16.42	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-20.37	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.8	67.7	66.3	60.3	68.8	69.4
Medium Trucks:	62.4	59.3	51.8	60.6	66.8	66.8
Heavy Trucks:	62.8	59.6	56.2	60.9	67.1	67.2
Vehicle Noise:	70.5	68.8	66.9	65.4	72.4	72.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	92	199	429	924
CNEL:	97	209	451	971

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: McCall Blvd.
Road Segment: e/o Oak Hurst Ave.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,566 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,862 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	0.29	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-16.95	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-20.90	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.3	67.1	65.8	59.8	68.2	68.9
Medium Trucks:	61.9	58.8	51.3	60.1	66.2	66.3
Heavy Trucks:	62.3	59.1	55.7	60.3	66.5	66.6
Vehicle Noise:	70.0	68.3	66.4	64.9	71.9	72.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	85	184	396	852
CNEL:	90	193	415	895

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: McCall Blvd.
Road Segment: e/o Junipero Rd.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,523	vehicles
Peak Hour Percentage:	8.25%	
Peak Hour Volume:	1,446	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	58	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	64.0	feet
Centerline Dist. to Observer:	64.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-0.81	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-18.05	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-22.00	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.2	66.0	64.7	58.7	67.1	67.8
Medium Trucks:	60.8	57.7	50.2	59.0	65.1	65.2
Heavy Trucks:	61.2	58.0	54.6	59.2	65.4	65.5
Vehicle Noise:	68.9	67.2	65.3	63.8	70.8	71.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	72	155	334	720
CNEL:	76	163	351	756

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: McCall Blvd.
Road Segment: e/o Menifee Rd.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,031 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,735 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	0.95	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	77.72	-16.28	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-20.24	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.3	64.1	62.8	56.8	65.2	65.8
Medium Trucks:	59.3	56.2	48.7	57.4	63.6	63.7
Heavy Trucks:	60.6	57.4	54.0	58.6	64.8	64.9
Vehicle Noise:	67.3	65.5	63.5	62.5	69.4	69.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	58	125	270	581
CNEL:	61	131	282	607

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Heritage Lake Dr.
Road Segment: e/o Junipero Rd.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	431 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	36 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	64.30	-15.35	1.88	-1.20	*-4.56*	0.000	0.000
Medium Trucks:	75.75	-32.59	1.93	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	81.57	-36.54	1.92	-1.20	*-5.61*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	49.6	48.5	47.1	41.1	49.6	50.2
Medium Trucks:	43.9	40.8	33.3	42.1	48.2	48.3
Heavy Trucks:	45.7	42.5	39.1	43.8	50.0	50.1
Vehicle Noise:	51.9	50.0	47.9	47.2	54.1	54.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	3	7	15	32
CNEL:	3	7	16	34

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Heritage Lake Dr.
Road Segment: e/o Driveway 1

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	744 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	61 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	64.30	-12.98	1.88	-1.20	*-4.56*	0.000	0.000
Medium Trucks:	75.75	-30.22	1.93	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	81.57	-34.17	1.92	-1.20	*-5.61*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	52.0	50.8	49.5	43.5	51.9	52.6
Medium Trucks:	46.3	43.2	35.7	44.4	50.6	50.7
Heavy Trucks:	48.1	44.9	41.5	46.2	52.4	52.5
Vehicle Noise:	54.2	52.4	50.3	49.6	56.5	56.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	5	10	22	46
CNEL:	5	10	22	48

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Heritage Lake Dr.
Road Segment: e/o Menifee Rd.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,931 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	324 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	64.30	-5.75	1.88	-1.20	*-4.56*	0.000	0.000
Medium Trucks:	75.75	-22.99	1.93	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	81.57	-26.94	1.92	-1.20	*-5.61*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	59.2	58.1	56.7	50.7	59.2	59.8
Medium Trucks:	53.5	50.4	42.9	51.7	57.8	57.9
Heavy Trucks:	55.3	52.1	48.7	53.4	59.6	59.7
Vehicle Noise:	61.5	59.6	57.5	56.8	63.7	64.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	14	30	65	141
CNEL:	15	32	68	147

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Menifee Rd.
Road Segment: s/o McCall Blvd.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,054 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,242 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-1.88	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	82.40	-19.12	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-23.08	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.7	66.5	65.2	59.2	67.6	68.3
Medium Trucks:	61.1	58.1	50.6	59.3	65.5	65.5
Heavy Trucks:	61.1	57.9	54.5	59.2	65.4	65.5
Vehicle Noise:	69.3	67.6	65.7	64.0	71.1	71.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	75	162	350	754
CNEL:	79	171	368	793

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Menifee Rd.
Road Segment: n/o McCall Blvd.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,634 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,042 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-2.64	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	82.40	-19.88	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-23.84	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.0	65.8	64.5	58.5	66.9	67.5
Medium Trucks:	60.4	57.3	49.8	58.5	64.7	64.7
Heavy Trucks:	60.4	57.2	53.8	58.4	64.6	64.7
Vehicle Noise:	68.5	66.8	65.0	63.2	70.3	70.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	67	144	311	671
CNEL:	71	152	327	705

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Menifee Rd.
Road Segment: n/o Driveway 2

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,634 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,042 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-2.64	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	82.40	-19.88	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-23.84	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.0	65.8	64.5	58.5	66.9	67.5
Medium Trucks:	60.4	57.3	49.8	58.5	64.7	64.7
Heavy Trucks:	60.4	57.2	53.8	58.4	64.6	64.7
Vehicle Noise:	68.5	66.8	65.0	63.2	70.3	70.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	67	144	311	671
CNEL:	71	152	327	705

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Menifee Rd.
Road Segment: n/o Heritage Lake Dr.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,634 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,042 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-2.64	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	82.40	-19.88	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-23.84	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.0	65.8	64.5	58.5	66.9	67.5
Medium Trucks:	60.4	57.3	49.8	58.5	64.7	64.7
Heavy Trucks:	60.4	57.2	53.8	58.4	64.6	64.7
Vehicle Noise:	68.5	66.8	65.0	63.2	70.3	70.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	67	144	311	671
CNEL:	71	152	327	705

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Junipero Rd.
Road Segment: n/o McCall Blvd.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,904 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	157 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	58.73	-7.44	1.88	-1.20	*-4.56*	0.000	0.000
Medium Trucks:	70.80	-24.68	1.93	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	77.97	-28.63	1.92	-1.20	*-5.61*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	52.0	50.8	49.5	43.5	51.9	52.5
Medium Trucks:	46.8	43.8	36.3	45.0	51.2	51.2
Heavy Trucks:	50.1	46.9	43.5	48.1	54.3	54.4
Vehicle Noise:	54.9	52.9	50.6	50.7	57.5	57.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	5	12	25	54
CNEL:	6	12	26	56

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Junipero Rd.
Road Segment: n/o Heritage Lake Dr.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	831 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	69 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	58.73	-11.04	1.88	-1.20	*-4.56*	0.000	0.000
Medium Trucks:	70.80	-28.28	1.93	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	77.97	-32.23	1.92	-1.20	*-5.61*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	48.4	47.2	45.9	39.9	48.3	48.9
Medium Trucks:	43.2	40.2	32.7	41.4	47.6	47.6
Heavy Trucks:	46.5	43.3	39.9	44.5	50.7	50.8
Vehicle Noise:	51.3	49.3	47.0	47.1	53.9	54.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	3	7	14	31
CNEL:	3	7	15	32

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Sherman Rd.
Road Segment: n/o McCall Blvd.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,758 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	145 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	58.73	-7.78	1.88	-1.20	*-4.56*	0.000	0.000
Medium Trucks:	70.80	-25.02	1.93	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	77.97	-28.98	1.92	-1.20	*-5.61*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	51.6	50.5	49.1	43.1	51.6	52.2
Medium Trucks:	46.5	43.4	35.9	44.7	50.9	50.9
Heavy Trucks:	49.7	46.5	43.1	47.8	54.0	54.1
Vehicle Noise:	54.5	52.5	50.3	50.4	57.1	57.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	5	11	24	51
CNEL:	5	11	25	53

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + Project
Road Name: McCall Blvd.
Road Segment: w/o I-215SB Off Ramp

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,240 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,155 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	59.0 feet
Centerline Dist. to Observer:	59.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	64.30	4.13	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	75.75	-13.11	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	81.57	-17.06	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.6	65.4	64.1	58.1	66.5	67.2
Medium Trucks:	60.8	57.8	50.3	59.0	65.2	65.2
Heavy Trucks:	62.7	59.5	56.1	60.7	66.9	67.0
Vehicle Noise:	68.8	67.0	64.9	64.2	71.1	71.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	69	150	322	694
CNEL:	72	156	336	724

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + Project
Road Name: McCall Blvd.
Road Segment: e/o I-215NB Off Ramp

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,241 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,155 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	2.58	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-14.66	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-18.61	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.6	69.4	68.1	62.1	70.5	71.1
Medium Trucks:	64.2	61.1	53.6	62.4	68.5	68.6
Heavy Trucks:	64.6	61.4	58.0	62.6	68.8	68.9
Vehicle Noise:	72.3	70.6	68.7	67.1	74.2	74.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	121	261	562	1,211
CNEL:	127	274	590	1,272

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + Project
Road Name: McCall Blvd.
Road Segment: e/o Encanto Dr.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,404 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,591 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	1.73	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-15.51	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-19.47	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.7	68.6	67.3	61.2	69.7	70.3
Medium Trucks:	63.3	60.3	52.8	61.5	67.7	67.7
Heavy Trucks:	63.7	60.5	57.1	61.8	68.0	68.1
Vehicle Noise:	71.4	69.7	67.8	66.3	73.3	73.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	106	229	493	1,062
CNEL:	112	240	518	1,116

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + Project
Road Name: McCall Blvd.
Road Segment: e/o Sherman Rd.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,880	vehicles
Peak Hour Percentage:	8.25%	
Peak Hour Volume:	2,465	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	58	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	64.0	feet
Centerline Dist. to Observer:	64.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	1.51	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-15.73	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-19.68	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.5	68.4	67.0	61.0	69.4	70.1
Medium Trucks:	63.1	60.0	52.5	61.3	67.5	67.5
Heavy Trucks:	63.5	60.3	56.9	61.6	67.8	67.9
Vehicle Noise:	71.2	69.5	67.6	66.1	73.1	73.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	103	221	477	1,028
CNEL:	108	233	501	1,079

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + Project
Road Name: McCall Blvd.
Road Segment: e/o Hillpointe Dr.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,704 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,451 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	1.48	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-15.75	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-19.71	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.5	68.3	67.0	61.0	69.4	70.0
Medium Trucks:	63.1	60.0	52.5	61.3	67.4	67.5
Heavy Trucks:	63.5	60.3	56.9	61.5	67.7	67.8
Vehicle Noise:	71.2	69.5	67.6	66.0	73.1	73.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	102	221	475	1,024
CNEL:	107	232	499	1,075

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + Project
Road Name: McCall Blvd.
Road Segment: e/o Antelope Rd.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,380 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,176 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	0.97	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-16.27	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-20.23	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.0	67.8	66.5	60.5	68.9	69.5
Medium Trucks:	62.6	59.5	52.0	60.7	66.9	67.0
Heavy Trucks:	63.0	59.8	56.4	61.0	67.2	67.3
Vehicle Noise:	70.7	69.0	67.0	65.5	72.5	72.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	95	204	439	946
CNEL:	99	214	461	993

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + Project
Road Name: McCall Blvd.
Road Segment: e/o Oak Hurst Ave.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,456 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,935 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	0.46	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-16.78	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-20.74	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.5	67.3	66.0	60.0	68.4	69.0
Medium Trucks:	62.1	59.0	51.5	60.2	66.4	66.4
Heavy Trucks:	62.5	59.3	55.9	60.5	66.7	66.8
Vehicle Noise:	70.2	68.5	66.5	65.0	72.0	72.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	87	188	406	875
CNEL:	92	198	426	918

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + Project
Road Name: McCall Blvd.
Road Segment: e/o Junipero Rd.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,413	vehicles
Peak Hour Percentage:	8.25%	
Peak Hour Volume:	1,519	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	58	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	64.0	feet
Centerline Dist. to Observer:	64.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-0.59	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-17.83	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-21.79	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.4	66.2	64.9	58.9	67.3	68.0
Medium Trucks:	61.0	57.9	50.4	59.2	65.4	65.4
Heavy Trucks:	61.4	58.2	54.8	59.5	65.7	65.8
Vehicle Noise:	69.1	67.4	65.5	64.0	71.0	71.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	74	160	345	744
CNEL:	78	168	363	782

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + Project
Road Name: McCall Blvd.
Road Segment: e/o Menifee Rd.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,193	vehicles
Peak Hour Percentage:	8.25%	
Peak Hour Volume:	1,748	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	58	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	64.0	feet
Centerline Dist. to Observer:	64.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	0.99	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	77.72	-16.25	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-20.21	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.3	64.1	62.8	56.8	65.2	65.9
Medium Trucks:	59.3	56.2	48.7	57.5	63.7	63.7
Heavy Trucks:	60.6	57.4	54.0	58.7	64.9	65.0
Vehicle Noise:	67.3	65.5	63.5	62.5	69.4	69.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	58	126	271	584
CNEL:	61	132	283	611

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + Project
Road Name: Heritage Lake Dr.
Road Segment: e/o Junipero Rd.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,240 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	102 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	64.30	-10.76	1.88	-1.20	*-4.56*	0.000	0.000
Medium Trucks:	75.75	-28.00	1.93	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	81.57	-31.95	1.92	-1.20	*-5.61*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	54.2	53.1	51.7	45.7	54.1	54.8
Medium Trucks:	48.5	45.4	37.9	46.7	52.8	52.9
Heavy Trucks:	50.3	47.1	43.7	48.4	54.6	54.7
Vehicle Noise:	56.5	54.6	52.5	51.8	58.7	59.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	7	14	30	65
CNEL:	7	15	32	68

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + Project
Road Name: Heritage Lake Dr.
Road Segment: e/o Driveway 1

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,148 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	95 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	64.30	-11.10	1.88	-1.20	*-4.56*	0.000	0.000
Medium Trucks:	75.75	-28.33	1.93	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	81.57	-32.29	1.92	-1.20	*-5.61*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.9	52.7	51.4	45.4	53.8	54.4
Medium Trucks:	48.1	45.1	37.6	46.3	52.5	52.5
Heavy Trucks:	50.0	46.8	43.4	48.0	54.2	54.3
Vehicle Noise:	56.1	54.3	52.2	51.5	58.4	58.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	6	13	29	62
CNEL:	6	14	30	65

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + Project
Road Name: Heritage Lake Dr.
Road Segment: e/o Menifee Rd.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,011 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	331 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	64.30	-5.66	1.88	-1.20	*-4.56*	0.000	0.000
Medium Trucks:	75.75	-22.90	1.93	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	81.57	-26.86	1.92	-1.20	*-5.61*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	59.3	58.1	56.8	50.8	59.2	59.9
Medium Trucks:	53.6	50.5	43.0	51.8	57.9	58.0
Heavy Trucks:	55.4	52.2	48.8	53.5	59.7	59.8
Vehicle Noise:	61.6	59.7	57.6	56.9	63.8	64.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	14	31	66	142
CNEL:	15	32	69	149

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + Project
Road Name: Menifee Rd.
Road Segment: s/o McCall Blvd.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,216	vehicles
Peak Hour Percentage:	8.25%	
Peak Hour Volume:	1,255	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	58	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	64.0	feet
Centerline Dist. to Observer:	64.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-1.83	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	82.40	-19.07	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-23.03	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.8	66.6	65.3	59.3	67.7	68.3
Medium Trucks:	61.2	58.1	50.6	59.3	65.5	65.6
Heavy Trucks:	61.2	58.0	54.6	59.2	65.4	65.5
Vehicle Noise:	69.3	67.7	65.8	64.1	71.1	71.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	76	164	352	759
CNEL:	80	172	371	799

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + Project
Road Name: Menifee Rd.
Road Segment: n/o McCall Blvd.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,038	vehicles
Peak Hour Percentage:	8.25%	
Peak Hour Volume:	1,076	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	58	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	64.0	feet
Centerline Dist. to Observer:	64.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-2.51	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	82.40	-19.74	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-23.70	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.1	65.9	64.6	58.6	67.0	67.6
Medium Trucks:	60.5	57.4	49.9	58.7	64.8	64.9
Heavy Trucks:	60.5	57.3	53.9	58.6	64.8	64.9
Vehicle Noise:	68.7	67.0	65.1	63.4	70.4	70.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	68	148	318	685
CNEL:	72	155	334	720

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + Project
Road Name: Menifee Rd.
Road Segment: n/o Driveway 2

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,876 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,062 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-2.56	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	82.40	-19.80	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-23.75	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.0	65.9	64.5	58.5	67.0	67.6
Medium Trucks:	60.4	57.4	49.9	58.6	64.8	64.8
Heavy Trucks:	60.5	57.3	53.9	58.5	64.7	64.8
Vehicle Noise:	68.6	66.9	65.0	63.3	70.4	70.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	68	146	315	679
CNEL:	71	154	332	714

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + Project
Road Name: Menifee Rd.
Road Segment: n/o Heritage Lake Dr.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,755 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,052 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-2.60	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	82.40	-19.84	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-23.80	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.0	65.8	64.5	58.5	66.9	67.5
Medium Trucks:	60.4	57.3	49.8	58.6	64.8	64.8
Heavy Trucks:	60.4	57.2	53.8	58.5	64.7	64.8
Vehicle Noise:	68.6	66.9	65.0	63.3	70.3	70.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	67	145	313	675
CNEL:	71	153	330	710

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + Project
Road Name: Junipero Rd.
Road Segment: n/o McCall Blvd.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,632 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	217 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	58.73	-6.03	1.88	-1.20	*-4.56*	0.000	0.000
Medium Trucks:	70.80	-23.27	1.93	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	77.97	-27.23	1.92	-1.20	*-5.61*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.4	52.2	50.9	44.9	53.3	53.9
Medium Trucks:	48.3	45.2	37.7	46.4	52.6	52.7
Heavy Trucks:	51.5	48.3	44.9	49.5	55.7	55.8
Vehicle Noise:	56.3	54.3	52.0	52.2	58.9	59.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	7	14	31	67
CNEL:	7	15	32	69

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + Project
Road Name: Junipero Rd.
Road Segment: n/o Heritage Lake Dr.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,640 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	135 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	58.73	-8.09	1.88	-1.20	*-4.56*	0.000	0.000
Medium Trucks:	70.80	-25.32	1.93	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	77.97	-29.28	1.92	-1.20	*-5.61*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	51.3	50.2	48.8	42.8	51.3	51.9
Medium Trucks:	46.2	43.1	35.6	44.4	50.6	50.6
Heavy Trucks:	49.4	46.2	42.8	47.5	53.7	53.8
Vehicle Noise:	54.2	52.2	50.0	50.1	56.8	57.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	5	11	23	49
CNEL:	5	11	24	51

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + Project
Road Name: Sherman Rd.
Road Segment: n/o McCall Blvd.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,838 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	152 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	58.73	-7.59	1.88	-1.20	*-4.56*	0.000	0.000
Medium Trucks:	70.80	-24.83	1.93	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	77.97	-28.78	1.92	-1.20	*-5.61*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	51.8	50.7	49.3	43.3	51.7	52.4
Medium Trucks:	46.7	43.6	36.1	44.9	51.1	51.1
Heavy Trucks:	49.9	46.7	43.3	48.0	54.2	54.2
Vehicle Noise:	54.7	52.7	50.5	50.6	57.3	57.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	5	11	24	53
CNEL:	5	12	25	55

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY Cum NP
Road Name: McCall Blvd.
Road Segment: w/o I-215SB Off Ramp

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	49,415 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	4,077 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	59.0 feet
Centerline Dist. to Observer:	59.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	64.30	5.24	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	75.75	-11.99	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	81.57	-15.95	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.7	66.6	65.2	59.2	67.6	68.3
Medium Trucks:	62.0	58.9	51.4	60.1	66.3	66.4
Heavy Trucks:	63.8	60.6	57.2	61.9	68.1	68.2
Vehicle Noise:	70.0	68.1	66.0	65.3	72.2	72.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	82	177	382	823
CNEL:	86	185	399	859

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY Cum NP
Road Name: McCall Blvd.
Road Segment: e/o I-215NB Off Ramp

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	49,416 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	4,077 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	3.69	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-13.54	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-17.50	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	71.7	70.5	69.2	63.2	71.6	72.3
Medium Trucks:	65.3	62.2	54.7	63.5	69.6	69.7
Heavy Trucks:	65.7	62.5	59.1	63.7	69.9	70.0
Vehicle Noise:	73.4	71.7	69.8	68.3	75.3	75.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	144	310	667	1,437
CNEL:	151	325	701	1,509

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY Cum NP
Road Name: McCall Blvd.
Road Segment: e/o Encanto Dr.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	44,191 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,646 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	3.21	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-14.03	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-17.98	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	71.2	70.1	68.7	62.7	71.1	71.8
Medium Trucks:	64.8	61.7	54.2	63.0	69.2	69.2
Heavy Trucks:	65.2	62.0	58.6	63.3	69.5	69.6
Vehicle Noise:	72.9	71.2	69.3	67.8	74.8	75.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	133	287	619	1,334
CNEL:	140	302	650	1,401

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY Cum NP
Road Name: McCall Blvd.
Road Segment: e/o Sherman Rd.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	41,146 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,395 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	2.90	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-14.34	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-18.29	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.9	69.7	68.4	62.4	70.8	71.5
Medium Trucks:	64.5	61.4	53.9	62.7	68.9	68.9
Heavy Trucks:	64.9	61.7	58.3	63.0	69.2	69.2
Vehicle Noise:	72.6	70.9	69.0	67.5	74.5	74.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	127	274	590	1,272
CNEL:	134	288	620	1,336

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY Cum NP
Road Name: McCall Blvd.
Road Segment: e/o Hillpointe Dr.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	39,580 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,265 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	2.73	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-14.51	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-18.46	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.7	69.6	68.3	62.2	70.7	71.3
Medium Trucks:	64.3	61.3	53.8	62.5	68.7	68.7
Heavy Trucks:	64.7	61.5	58.1	62.8	69.0	69.1
Vehicle Noise:	72.4	70.7	68.8	67.3	74.3	74.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	124	267	575	1,240
CNEL:	130	280	604	1,302

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY Cum NP
Road Name: McCall Blvd.
Road Segment: e/o Antelope Rd.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	36,052 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,974 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	2.33	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-14.91	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-18.87	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.3	69.2	67.9	61.8	70.3	70.9
Medium Trucks:	63.9	60.9	53.4	62.1	68.3	68.3
Heavy Trucks:	64.3	61.1	57.7	62.4	68.6	68.7
Vehicle Noise:	72.0	70.3	68.4	66.9	73.9	74.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	116	251	541	1,165
CNEL:	122	264	568	1,223

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY Cum NP
Road Name: McCall Blvd.
Road Segment: e/o Oak Hurst Ave.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,687 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,614 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	1.76	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-15.47	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-19.43	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.8	68.6	67.3	61.3	69.7	70.3
Medium Trucks:	63.4	60.3	52.8	61.5	67.7	67.8
Heavy Trucks:	63.8	60.6	57.2	61.8	68.0	68.1
Vehicle Noise:	71.5	69.8	67.8	66.3	73.3	73.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	107	230	496	1,069
CNEL:	112	242	521	1,122

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY Cum NP
Road Name: McCall Blvd.
Road Segment: e/o Junipero Rd.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,977 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,143 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	0.90	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-16.34	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-20.29	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.9	67.7	66.4	60.4	68.8	69.5
Medium Trucks:	62.5	59.4	51.9	60.7	66.9	66.9
Heavy Trucks:	62.9	59.7	56.3	61.0	67.2	67.3
Vehicle Noise:	70.6	68.9	67.0	65.5	72.5	72.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	94	202	435	936
CNEL:	98	212	456	983

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY Cum NP
Road Name: McCall Blvd.
Road Segment: e/o Menifee Rd.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,247 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,413 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	2.39	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	77.72	-14.85	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-18.81	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.7	65.5	64.2	58.2	66.6	67.3
Medium Trucks:	60.7	57.6	50.1	58.9	65.1	65.1
Heavy Trucks:	62.0	58.8	55.4	60.1	66.3	66.4
Vehicle Noise:	68.7	66.9	64.9	63.9	70.8	71.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	72	156	336	724
CNEL:	76	163	351	757

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY Cum NP
Road Name: Heritage Lake Dr.
Road Segment: e/o Junipero Rd.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	458 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	38 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	64.30	-15.09	1.88	-1.20	*-4.56*	0.000	0.000
Medium Trucks:	75.75	-32.32	1.93	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	81.57	-36.28	1.92	-1.20	*-5.61*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	49.9	48.7	47.4	41.4	49.8	50.4
Medium Trucks:	44.2	41.1	33.6	42.3	48.5	48.5
Heavy Trucks:	46.0	42.8	39.4	44.1	50.3	50.3
Vehicle Noise:	52.1	50.3	48.2	47.5	54.4	54.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	3	7	16	34
CNEL:	3	8	16	35

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY Cum NP
Road Name: Heritage Lake Dr.
Road Segment: e/o Driveway 1

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	790 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	65 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	64.30	-12.72	1.88	-1.20	*-4.56*	0.000	0.000
Medium Trucks:	75.75	-29.96	1.93	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	81.57	-33.91	1.92	-1.20	*-5.61*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	52.3	51.1	49.8	43.8	52.2	52.8
Medium Trucks:	46.5	43.5	36.0	44.7	50.9	50.9
Heavy Trucks:	48.4	45.2	41.8	46.4	52.6	52.7
Vehicle Noise:	54.5	52.6	50.6	49.9	56.7	57.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	5	10	22	48
CNEL:	5	11	23	50

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY Cum NP
Road Name: Heritage Lake Dr.
Road Segment: e/o Menifee Rd.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,172 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	344 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	64.30	-5.49	1.88	-1.20	*-4.56*	0.000	0.000
Medium Trucks:	75.75	-22.73	1.93	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	81.57	-26.69	1.92	-1.20	*-5.61*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	59.5	58.3	57.0	51.0	59.4	60.0
Medium Trucks:	53.7	50.7	43.2	51.9	58.1	58.1
Heavy Trucks:	55.6	52.4	49.0	53.6	59.8	59.9
Vehicle Noise:	61.7	59.9	57.8	57.1	64.0	64.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	15	32	68	146
CNEL:	15	33	71	153

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY Cum NP
Road Name: Menifee Rd.
Road Segment: s/o McCall Blvd.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,642 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,868 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-0.11	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	82.40	-17.35	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-21.30	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.5	68.3	67.0	61.0	69.4	70.0
Medium Trucks:	62.9	59.8	52.3	61.1	67.2	67.3
Heavy Trucks:	62.9	59.7	56.3	61.0	67.2	67.3
Vehicle Noise:	71.1	69.4	67.5	65.8	72.8	73.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	99	213	459	990
CNEL:	104	224	483	1,041

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY Cum NP
Road Name: Menifee Rd.
Road Segment: n/o McCall Blvd.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,638 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,538 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-0.95	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	82.40	-18.19	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-22.15	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.6	67.5	66.2	60.1	68.6	69.2
Medium Trucks:	62.0	59.0	51.5	60.2	66.4	66.4
Heavy Trucks:	62.1	58.9	55.5	60.1	66.3	66.4
Vehicle Noise:	70.2	68.5	66.6	64.9	72.0	72.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	87	187	403	869
CNEL:	91	197	424	914

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY Cum NP
Road Name: Menifee Rd.
Road Segment: n/o Driveway 2

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,636 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,537 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-0.95	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	82.40	-18.19	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-22.15	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.6	67.5	66.2	60.1	68.6	69.2
Medium Trucks:	62.0	59.0	51.5	60.2	66.4	66.4
Heavy Trucks:	62.1	58.9	55.5	60.1	66.3	66.4
Vehicle Noise:	70.2	68.5	66.6	64.9	72.0	72.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	87	187	403	869
CNEL:	91	197	424	914

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY Cum NP
Road Name: Menifee Rd.
Road Segment: n/o Heritage Lake Dr.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,636 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,537 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-0.95	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	82.40	-18.19	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-22.15	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.6	67.5	66.2	60.1	68.6	69.2
Medium Trucks:	62.0	59.0	51.5	60.2	66.4	66.4
Heavy Trucks:	62.1	58.9	55.5	60.1	66.3	66.4
Vehicle Noise:	70.2	68.5	66.6	64.9	72.0	72.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	87	187	403	869
CNEL:	91	197	424	914

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY Cum NP
Road Name: Junipero Rd.
Road Segment: n/o McCall Blvd.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,294 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	189 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	58.73	-6.63	1.88	-1.20	*-4.56*	0.000	0.000
Medium Trucks:	70.80	-23.87	1.93	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	77.97	-27.82	1.92	-1.20	*-5.61*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	52.8	51.6	50.3	44.3	52.7	53.3
Medium Trucks:	47.7	44.6	37.1	45.8	52.0	52.1
Heavy Trucks:	50.9	47.7	44.3	48.9	55.1	55.2
Vehicle Noise:	55.7	53.7	51.4	51.6	58.3	58.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	6	13	28	61
CNEL:	6	14	29	63

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY Cum NP
Road Name: Junipero Rd.
Road Segment: n/o Heritage Lake Dr.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,209 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	100 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	58.73	-9.41	1.88	-1.20	*-4.56*	0.000	0.000
Medium Trucks:	70.80	-26.65	1.93	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	77.97	-30.60	1.92	-1.20	*-5.61*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	50.0	48.8	47.5	41.5	49.9	50.6
Medium Trucks:	44.9	41.8	34.3	43.1	49.2	49.3
Heavy Trucks:	48.1	44.9	41.5	46.1	52.3	52.4
Vehicle Noise:	52.9	50.9	48.7	48.8	55.5	55.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	4	9	18	40
CNEL:	4	9	19	41

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY Cum NP
Road Name: Sherman Rd.
Road Segment: n/o McCall Blvd.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,866 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	401 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	58.73	-3.36	1.88	-1.20	*-4.56*	0.000	0.000
Medium Trucks:	70.80	-20.60	1.93	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	77.97	-24.56	1.92	-1.20	*-5.61*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	56.1	54.9	53.6	47.6	56.0	56.6
Medium Trucks:	50.9	47.9	40.4	49.1	55.3	55.3
Heavy Trucks:	54.1	50.9	47.5	52.2	58.4	58.5
Vehicle Noise:	59.0	56.9	54.7	54.8	61.5	61.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	10	22	47	101
CNEL:	10	23	49	105

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY Cum WP
Road Name: McCall Blvd.
Road Segment: w/o I-215SB Off Ramp

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	49,859 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	4,113 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	59.0 feet
Centerline Dist. to Observer:	59.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	64.30	5.28	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	75.75	-11.96	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	81.57	-15.91	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.8	66.6	65.3	59.3	67.7	68.3
Medium Trucks:	62.0	58.9	51.4	60.2	66.4	66.4
Heavy Trucks:	63.9	60.6	57.2	61.9	68.1	68.2
Vehicle Noise:	70.0	68.1	66.1	65.4	72.2	72.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	83	178	384	828
CNEL:	86	186	401	864

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY Cum WP
Road Name: McCall Blvd.
Road Segment: e/o I-215NB Off Ramp

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	49,861 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	4,114 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	3.73	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-13.50	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-17.46	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	71.7	70.6	69.3	63.3	71.7	72.3
Medium Trucks:	65.3	62.3	54.8	63.5	69.7	69.7
Heavy Trucks:	65.7	62.5	59.1	63.8	70.0	70.1
Vehicle Noise:	73.4	71.7	69.8	68.3	75.3	75.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	145	312	671	1,446
CNEL:	152	327	705	1,518

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY Cum WP
Road Name: McCall Blvd.
Road Segment: e/o Encanto Dr.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	45,001 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,713 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	3.29	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-13.95	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-17.91	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	71.3	70.1	68.8	62.8	71.2	71.9
Medium Trucks:	64.9	61.8	54.3	63.1	69.2	69.3
Heavy Trucks:	65.3	62.1	58.7	63.3	69.5	69.6
Vehicle Noise:	73.0	71.3	69.4	67.8	74.9	75.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	135	291	627	1,350
CNEL:	142	305	658	1,418

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY Cum WP
Road Name: McCall Blvd.
Road Segment: e/o Sherman Rd.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	41,956 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,461 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	2.98	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-14.25	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-18.21	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	71.0	69.8	68.5	62.5	70.9	71.5
Medium Trucks:	64.6	61.5	54.0	62.8	68.9	69.0
Heavy Trucks:	65.0	61.8	58.4	63.0	69.2	69.3
Vehicle Noise:	72.7	71.0	69.1	67.5	74.6	74.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	129	278	598	1,289
CNEL:	135	292	628	1,353

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY Cum WP
Road Name: McCall Blvd.
Road Segment: e/o Hillpointe Dr.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	40,470 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,339 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	2.83	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-14.41	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-18.37	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.8	69.7	68.4	62.3	70.8	71.4
Medium Trucks:	64.4	61.4	53.9	62.6	68.8	68.8
Heavy Trucks:	64.8	61.6	58.2	62.9	69.1	69.2
Vehicle Noise:	72.5	70.8	68.9	67.4	74.4	74.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	126	271	584	1,258
CNEL:	132	285	613	1,321

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY Cum WP
Road Name: McCall Blvd.
Road Segment: e/o Antelope Rd.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	36,942 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,048 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	2.43	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-14.81	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-18.76	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.4	69.3	68.0	61.9	70.4	71.0
Medium Trucks:	64.0	61.0	53.5	62.2	68.4	68.4
Heavy Trucks:	64.4	61.2	57.8	62.5	68.7	68.8
Vehicle Noise:	72.1	70.4	68.5	67.0	74.0	74.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	118	255	550	1,184
CNEL:	124	268	577	1,243

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY Cum WP
Road Name: McCall Blvd.
Road Segment: e/o Oak Hurst Ave.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,577 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,688 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	1.89	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-15.35	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-19.31	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.9	68.7	67.4	61.4	69.8	70.4
Medium Trucks:	63.5	60.4	52.9	61.7	67.8	67.9
Heavy Trucks:	63.9	60.7	57.3	61.9	68.1	68.2
Vehicle Noise:	71.6	69.9	68.0	66.4	73.5	73.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	109	235	505	1,089
CNEL:	114	246	531	1,143

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY Cum WP
Road Name: McCall Blvd.
Road Segment: e/o Junipero Rd.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,867 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,217 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	1.05	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-16.19	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-20.15	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.1	67.9	66.6	60.6	69.0	69.6
Medium Trucks:	62.6	59.6	52.1	60.8	67.0	67.0
Heavy Trucks:	63.1	59.9	56.5	61.1	67.3	67.4
Vehicle Noise:	70.8	69.0	67.1	65.6	72.6	72.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	96	206	444	957
CNEL:	101	217	467	1,005

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY Cum WP
Road Name: McCall Blvd.
Road Segment: e/o Menifee Rd.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,589 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,441 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	2.44	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	77.72	-14.80	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-18.76	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.8	65.6	64.3	58.3	66.7	67.3
Medium Trucks:	60.7	57.7	50.2	58.9	65.1	65.1
Heavy Trucks:	62.1	58.9	55.5	60.1	66.3	66.4
Vehicle Noise:	68.8	67.0	65.0	63.9	70.9	71.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	73	157	339	729
CNEL:	76	164	354	763

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY Cum WP
Road Name: Heritage Lake Dr.
Road Segment: e/o Junipero Rd.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,267 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	105 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	64.30	-10.67	1.88	-1.20	*-4.56*	0.000	0.000
Medium Trucks:	75.75	-27.91	1.93	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	81.57	-31.86	1.92	-1.20	*-5.61*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	54.3	53.1	51.8	45.8	54.2	54.9
Medium Trucks:	48.6	45.5	38.0	46.8	52.9	53.0
Heavy Trucks:	50.4	47.2	43.8	48.5	54.7	54.8
Vehicle Noise:	56.6	54.7	52.6	51.9	58.8	59.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	7	14	31	66
CNEL:	7	15	32	69

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY Cum WP
Road Name: Heritage Lake Dr.
Road Segment: e/o Driveway 1

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,194 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	99 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	64.30	-10.92	1.88	-1.20	*-4.56*	0.000	0.000
Medium Trucks:	75.75	-28.16	1.93	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	81.57	-32.12	1.92	-1.20	*-5.61*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	54.1	52.9	51.6	45.6	54.0	54.6
Medium Trucks:	48.3	45.3	37.7	46.5	52.7	52.7
Heavy Trucks:	50.2	47.0	43.6	48.2	54.4	54.5
Vehicle Noise:	56.3	54.4	52.4	51.7	58.5	58.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	6	14	29	64
CNEL:	7	14	31	66

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY Cum WP
Road Name: Heritage Lake Dr.
Road Segment: e/o Menifee Rd.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,252 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	351 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	64.30	-5.41	1.88	-1.20	*-4.56*	0.000	0.000
Medium Trucks:	75.75	-22.65	1.93	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	81.57	-26.60	1.92	-1.20	*-5.61*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	59.6	58.4	57.1	51.1	59.5	60.1
Medium Trucks:	53.8	50.8	43.3	52.0	58.2	58.2
Heavy Trucks:	55.7	52.5	49.1	53.7	59.9	60.0
Vehicle Noise:	61.8	60.0	57.9	57.2	64.0	64.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	15	32	69	148
CNEL:	15	33	72	155

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY Cum WP
Road Name: Menifee Rd.
Road Segment: s/o McCall Blvd.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,804 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,881 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-0.08	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	82.40	-17.32	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-21.27	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.5	68.3	67.0	61.0	69.4	70.1
Medium Trucks:	62.9	59.9	52.4	61.1	67.3	67.3
Heavy Trucks:	63.0	59.7	56.3	61.0	67.2	67.3
Vehicle Noise:	71.1	69.4	67.5	65.8	72.9	73.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	99	214	461	994
CNEL:	105	225	485	1,046

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY Cum WP
Road Name: Menifee Rd.
Road Segment: n/o McCall Blvd.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,042 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,571 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-0.86	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	82.40	-18.10	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-22.06	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.7	67.6	66.2	60.2	68.7	69.3
Medium Trucks:	62.1	59.1	51.6	60.3	66.5	66.5
Heavy Trucks:	62.2	59.0	55.6	60.2	66.4	66.5
Vehicle Noise:	70.3	68.6	66.7	65.0	72.1	72.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	88	190	409	882
CNEL:	93	200	430	927

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY Cum WP
Road Name: Menifee Rd.
Road Segment: n/o Driveway 2

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,878 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,557 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-0.90	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	82.40	-18.14	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-22.09	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.7	67.5	66.2	60.2	68.6	69.2
Medium Trucks:	62.1	59.0	51.5	60.3	66.5	66.5
Heavy Trucks:	62.1	58.9	55.5	60.2	66.4	66.5
Vehicle Noise:	70.3	68.6	66.7	65.0	72.0	72.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	88	189	407	877
CNEL:	92	199	428	922

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY Cum WP
Road Name: Menifee Rd.
Road Segment: n/o Heritage Lake Dr.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,757 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,547 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-0.93	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	82.40	-18.16	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-22.12	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.7	67.5	66.2	60.2	68.6	69.2
Medium Trucks:	62.1	59.0	51.5	60.3	66.4	66.5
Heavy Trucks:	62.1	58.9	55.5	60.1	66.3	66.4
Vehicle Noise:	70.2	68.6	66.7	65.0	72.0	72.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	87	188	405	873
CNEL:	92	198	426	918

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY Cum WP
Road Name: Junipero Rd.
Road Segment: n/o McCall Blvd.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,022 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	249 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	58.73	-5.43	1.88	-1.20	*-4.56*	0.000	0.000
Medium Trucks:	70.80	-22.67	1.93	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	77.97	-26.62	1.92	-1.20	*-5.61*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	54.0	52.8	51.5	45.5	53.9	54.5
Medium Trucks:	48.9	45.8	38.3	47.0	53.2	53.3
Heavy Trucks:	52.1	48.9	45.5	50.1	56.3	56.4
Vehicle Noise:	56.9	54.9	52.6	52.8	59.5	59.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	7	16	34	73
CNEL:	8	16	35	76

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY Cum WP
Road Name: Junipero Rd.
Road Segment: n/o Heritage Lake Dr.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,018 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	166 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	58.73	-7.18	1.88	-1.20	*-4.56*	0.000	0.000
Medium Trucks:	70.80	-24.42	1.93	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	77.97	-28.38	1.92	-1.20	*-5.61*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	52.2	51.1	49.7	43.7	52.2	52.8
Medium Trucks:	47.1	44.0	36.5	45.3	51.5	51.5
Heavy Trucks:	50.3	47.1	43.7	48.4	54.6	54.7
Vehicle Noise:	55.1	53.1	50.9	51.0	57.7	57.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	6	12	26	56
CNEL:	6	13	27	58

Thursday, October 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY Cum WP
Road Name: Sherman Rd.
Road Segment: n/o McCall Blvd.

Project Name: Village Junipero
Job Number: 14854

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,946 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	408 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	58.73	-3.29	1.88	-1.20	*-4.56*	0.000	0.000
Medium Trucks:	70.80	-20.53	1.93	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	77.97	-24.49	1.92	-1.20	*-5.61*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	56.1	55.0	53.6	47.6	56.0	56.7
Medium Trucks:	51.0	47.9	40.4	49.2	55.4	55.4
Heavy Trucks:	54.2	51.0	47.6	52.3	58.5	58.5
Vehicle Noise:	59.0	57.0	54.8	54.9	61.6	61.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	10	22	47	102
CNEL:	11	23	49	106

Thursday, October 27, 2022

APPENDIX 10.1:

AIR CONDITIONER MANUFACTURERS SPECIFICATIONS

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24ACC4
Comfort™ 14 Single-Stage Air Conditioner with Puron® Refrigerant
1-1/2 To 5 Tons

Carrier
Turn to the experts

Product Data



Industry leading Features / Benefits

Efficiency

- 14.0 - 14.5 SEER / 11.5 – 12.0 EER (based on tested combination and unit size)
- Microtube Technologyt refrigeration system
- Indoor air quality accessories available

Reliability

- Non-ozone depleting Puron® refrigerant
- Scroll compressor
- Internal pressure relief valve
- Internal thermal overload
- Filter drier

Durability

WeatherArmor™ Protection Package:

- Solid, durable sheet metal construction
- Dense wire coil guard

Applications

- Long–line – up to 250 feet (76.20 m) total equivalent length, up to 200 feet (60.96 m) condenser above evaporator, or up to 80 ft. (24.38 m) evaporator above condenser (See Long Line Guide for more information.)
- Low ambient down to (–10°F/–23°C) with accessory kit.

Model Number Nomenclature

1	2	3	4	5	6	7	8	9	10	11	12
N	N	A	A	A/N	N	N	N	A/N	A/N	A/N	N
2	**4**	**A**	**C**	**C**	**4**	**1**	**8**	**A**	**0**	**0**	**3**
Product Series		Product Family	Tier	Major Series	SEER	Cooling Capacity		Variations	Open	Outdoor Tube	Voltage
24 = AC		A = Res AC	C = Comfort Series	C = Puron	4 = 14 SEER	1,000 Btuh (nominal)		A = Dense Grille	0=Not Defined	0=Copper L = Aluminum	3=208/230-1

Use of the AHRI Certified Mark indicates a manufacturer's participation in the program. For verification of certification for individual products, go to www.ahridirectory.org.

Quality ISO 9001 SAI GLOBAL

CATALOG ORDERING NUMBERS

Size	Copper Coil Models	Aluminum Coil Models*
18	24ACC418A003	24ACC418A0L3
24	24ACC424A003	24ACC424A0L3
30	24ACC430A003	24ACC430A0L3
36	24ACC436A003	24ACC436A0L3
42	24ACC442A003	24ACC442A0L3
48	24ACC448A003	24ACC448A0L3
60	24ACC460A003	24ACC460A0L3

* Aluminum models phasing in June 2021. Please check with your supplier for availability.

STANDARD FEATURES

Features	18	24	30	36	42	48	60
Puron Refrigerant	X	X	X	X	X	X	X
SEER (Range depending on indoor combination)	14 - 16	14 - 16	14 - 16	14 - 16	14 - 16	14 - 15	14 - 15
Scroll Compressor	X	X	X	X	X	X	X
Field Installed Filter Drier	X	X	X	X	X	X	X
Front Seating Service Valves	X	X	X	X	X	X	X
Internal Pressure Relief Valve	X	X	X	X	X	X	X
Internal Thermal Overload	X	X	X	X	X	X	X
Long Line capability	X	X	X	X	X	X	X
Low Ambient capability with Kit	X	X	X	X	X	X	X

Manufacturer reserves the right to change, at any time, specifications and designs without notice and without obligations.

Physical Data-Copper Coil Models

UNIT SIZE	18A003	24A003	30A003	36A003	42A003	48A003	60A003
Compressor Type	Scroll						
REFRIGERANT	Puron® (R-410A)						
Control	TXV (Puron Hard Shutoff)						
Factory Charge lb (kg)	3.72 (1.69)	3.87 (1.76)	5.67 (2.57)	5.42 (2.46)	7.90 (3.58)	8.31 (3.77)	9.39 (4.26)
Required Charge lb (kg)*	4.77 (2.16)	4.20 (1.91)	--	--	--	--	--
COND FAN	Propeller Type, Direct Drive						
Air Discharge	Vertical						
Air Qty (CFM)	1600	1881	2614	3310	3700	3454	3700
Motor HP	1/12	1/12	1/10	1/5	1/4	1/4	1/4
Motor RPM	1100	1100	1100	1100	1110	1110	1100
COND COIL							
Face Area (Sq ft)	8.4	9.9	17.24	12.9	21.6	15.1	17.25
Fins per In.	25	25	25	20	25	20	20
Rows	1	1	1	1	1	2	2
Circuits	3	4	4	5	7	6	8
VALVE CONNECT. (In. ID)							
Vapor	3/4	3/4	3/4	7/8	7/8	7/8	7/8
Liquid	3/8						
REFRIGERANT TUBES (In. OD)							
Rated Vapor†	3/4	3/4	3/4	7/8	7/8	7/8	1-1/8
Max Liquid Line‡	3/8						

*.For 15 ft. Line Set
†.Units are rated with 25 ft (7.6 m) of lineset length. See Vapor Line Sizing and Cooling Capacity Loss table when using other sizes and lengths of lineset.
‡.See Liquid Line Sizing For Cooling Only Systems with Puron Refrigerant tables.
"--" = Factory charge and required charge values are equal
Note: See unit Installation Instruction for proper installation.

Physical Data-Aluminum Coil Models

UNIT SIZE	18A0L3	24A0L3	30A0L3	36A0L3	42A0L3	48A0L3	60A0L3
Compressor Type	Scroll						
REFRIGERANT	Puron® (R-410A)						
Control	TXV (Puron Hard Shutoff)						
Factory Charge lb (kg)*	2.80 (1.27)	3.28 (1.49)	5.67 (2.57)	4.11 (1.86)	7.90 (3.58)	8.31 (3.77)	9.39 (4.26)
Required Charge lb (kg)}	5.53 (2.51)	5.24 (2.38)	6.77 (3.07)	5.87 (2.66)	8.57 (3.89)	9.52 (4.32)	10.63 (4.82)
COND FAN	Propeller Type, Direct Drive						
Air Discharge	Vertical						
Air Qty (CFM)	1825	2008	3110	3353	3454	3454	3700
Motor HP	1/12	1/12	1/10	1/5	1/4	1/4	1/4
Motor RPM	1100	1100	1100	1100	1110	1110	1100
COND COIL							
Face Area (Sq ft)	8.40	9.85	17.25	12.93	23.71	15.09	19.40
Fins per In.	25	25	25	20	25	20	20
Rows	1	1	1	1	1	2	2
Circuits	3	5	4	5	7	6	9
VALVE CONNECT. (In. ID)							
Vapor	3/4	3/4	3/4	7/8	7/8	7/8	7/8
Liquid	3/8						
REFRIGERANT TUBES (In. OD)							
Rated Vapor†	3/4	3/4	3/4	7/8	7/8	7/8	1-1/8
Max Liquid Line‡	3/8						

*.For 15 ft. Line Set
†.Units are rated with 25 ft (7.6 m) of lineset length. See Vapor Line Sizing and Cooling Capacity Loss table when using other sizes and lengths of lineset.
‡.See Liquid Line Sizing For Cooling Only Systems with Puron Refrigerant tables.
Note: See unit Installation Instruction for proper installation.

Manufacturer reserves the right to change, at any time, specifications and designs without notice and without obligations.

REFRIGERANT PIPING LENGTH LIMITATIONS

Liquid Line Sizing and Maximum Total Equivalent Lengths for Cooling Only Systems with Puron® Refrigerant:

The maximum allowable length of a residential split system depends on the liquid line diameter and vertical separation between indoor and outdoor units.

See Table below for liquid line sizing and maximum lengths :

Table 1 – Maximum Total Equivalent Length* Outdoor Unit BELOW Indoor Unit

Size	Liquid Line Connection	Liquid Line Diam. w/ TXV	AC with Puron Refrigerant Maximum Total Equivalent Length†: Outdoor unit BELOW Indoor Vertical Separation ft (m)								
			0-5 (0-1.5)	6-10 (1.8-3.0)	11-20 (3.4-6.1)	21-30 (6.4-9.1)	31-40 (9.4-12.2)	41-50 (12.5-15.2)	51-60 (15.5-18.3)	61-70 (18.6-21.3)	71-80 (21.6-24.4)
18000	3/8	1/4	150	150	125	100	100	75	--	--	--
		5/16	250*	250*	250*	250*	250*	250*	250*	225*	150
		3/8	250*	250*	250*	250*	250*	250*	250*	250*	250*
24000	3/8	1/4	75	75	75	50	50	--	--	--	--
		5/16	250*	250*	250*	250*	250*	225*	175	125	100
		3/8	250*	250*	250*	250*	250*	250*	250*	250*	250*
30000	3/8	1/4	30	--	--	--	--	--	--	--	--
		5/16	175	225*	200	175	125	100	75	--	--
		3/8	250*	250*	250*	250*	250*	250*	250*	250*	250*
36000	3/8	5/16	175	150	150	100	100	100	75	--	--
		3//8	250*	250*	250*	250*	250*	250*	250*	250*	250*
42000	3/8	5/16	125	100	100	75	75	50	--	--	--
		3/8	250*	250*	250*	250*	250*	250*	250*	250*	150
48000	3/8	3/8	250*	250*	250*	250*	250*	250*	230	160	--
60000	3/8	3/8	250*	250*	250*	225*	190	150	110	--	--

*.Maximum actual length not to exceed 200 ft (61 m)
†.Total equivalent length accounts for losses due to elbows or fitting. See the Long Line Guideline for details.

-- = outside acceptable range

Table 2 – Maximum* Total Equivalent Length Outdoor Unit ABOVE Indoor Unit

Size	Liquid Line Connection	Liquid Line Diam. w/ TXV	AC with Puron Refrigerant Maximum Total Equivalent Length†: Outdoor unit ABOVE Indoor Vertical Separation ft (m)							
			25 (7.6)	26-50 (7.9-15.2)	51-75 (15.5-22.9)	76-100 (23.2-30.5)	101-125 (30.8-38.1)	126-150 (38.4-45.7)	151-175 (46.0-53.3)	176-200 (53.6-61.0)
18000	3/8	1/4	175	250*	250*	250*	250*	250*	250*	250*
		5/16	250*	250*	250*	250*	250*	250*	250*	250*
		3/8	250*	250*	250*	250*	250*	250*	250*	250*
24000	3/8	1/4	100	125	175	200	225*	250*	250*	250*
		5/16	250*	250*	250*	250*	250*	250*	250*	250*
		3/8	250*	250*	250*	250*	250*	250*	250*	250*
30000	3/8	1/4	30	--	--	--	--	--	--	--
		5/16	250*	250*	250*	250*	250*	250*	250*	250*
		3/8	250*	250*	250*	250*	250*	250*	250*	250*
36000	3/8	5/16	225*	250*	250*	250*	250*	250*	250*	250*
		3/8	250*	250*	250*	250*	250*	250*	250*	250*
42000	3/8	5/16	175	200	250*	250*	250*	250*	250*	250*
		3/8	250*	250*	250*	250*	250*	250*	250*	250*
48000	3/8	3/8	250*	250*	250*	250*	250*	250*	250*	250*
60000	3/8	3/8	250*	250*	250*	250*	250*	250*	250*	250*

*.Maximum actual length not to exceed 200 ft (61 m)
†.Total equivalent length accounts for losses due to elbows or fitting. See the Long Line Guideline for details.
-- = Outside acceptable range

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Refrigerant Charge Adjustments

Liquid Line Size	Puron Charge oz/ft (g/m)
3/8	0.60 (17.74) (Factory charge for lineset = 9 oz / 266.16 g)
5/16	0.40 (11.83)
1/4	0.27 (7.98)

Units are factory charged for 15 ft (4.6 m) of 3/8" liquid line*. The factory charge for 3/8" lineset 9 oz. When using other length or diameter liquid lines, charge adjustments are required per the chart above.

Charging Formula:

[(Lineset oz/ft X total length) – (factory charge for lineset)] = charge adjustment

Example 1: System has 15 ft of line set* using existing 1/4" liquid line. What charge adjustment is required?

Formula:(.27 oz/ft X 15ft) – (9 oz) = (-4.95) oz.

Net result is to remove 4.95 oz of refrigerant from the system

Example 2: System has 45 ft of existing 5/16" liquid line. What is the charge adjustment?

Formula:(.40 oz/ft. X 45ft) – (9 oz.) = 9 oz.

Net result is to add 9 oz of refrigerant to the system

NOTE: Conditions must be favorable for charging by subcooling method. Indoor temperature must be 70°F to 80°F (21.1°C to 26.7°C), and outdoor temperature must be 70°F to 100°F (21.1°C to 37.8°C). If outside these conditions, adjust charge for long line sets by weigh-in method.

* When applicable. Refer to Physical Data Table in this PD and to the Installation Instructions for more information.

Long Line Applications

An application is considered Long Line, when the refrigerant level in the system requires the use of accessories to maintain acceptable refrigerant management for systems reliability. See Accessory Usage Guideline table for required accessories. Defining a system as long line depends on the liquid line diameter, actual length of the tubing, and vertical separation between the indoor and outdoor units.

For Air Conditioner systems, the chart below shows when an application is considered Long Line.

Table 3 – AC with Puron® Refrigerant Long Line Description ft (m) Beyond these lengths, a TXV is required

Total Length	Outdoor Unit Above or Below Indoor Unit
TXV required beyond 50 ft. (15.2 m)	TXV required beyond 20 ft. (6.1 m)

Table 4 – AC with Puron® Refrigerant Long Line Description ft (m) (Beyond these lengths, long line accessories are required)

Liquid Line Size	Units On Same Level	Outdoor Below Indoor	Outdoor Above Indoor
1/4 + TXV	No accessories needed within allowed lengths	No accessories needed within allowed lengths	175 (53.3)
5/16 + TXV	120 (36.6)	50 (15.2) vertical or 120 (36.6) total	120 (36.6)
3/8 + TXV	80 (24.4)	35 (10.7) vertical or 80 (24.4) total	80 (24.4)

Note: See Residential Piping and Long Line Guideline for details

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VAPOR LINE SIZING AND COOLING CAPACITY LOSS

Acceptable vapor line diameters provide adequate oil return to the compressor while avoiding excessive capacity loss. The suction line diameters shown in the chart below are acceptable for AC systems with **Puron®** refrigerant:

Table 5 – Vapor Line Sizing and Cooling Capacity Losses — Puron® Refrigerant 1-Stage Air Conditioner Applications

Unit Nominal Size (Btuh)	Maximum Liquid Line Diameters (In. OD)	Vapor Line Diameters (In. OD)	Cooling Capacity Loss (%) Total Equivalent Line Length ft. (m) 1-Stage AC with Puron®								
			26-50 (7.9-15.2)	51-80 (15.5-24.4)	81-100 (24.7-30.5)	101-125 (30.8-38.1)	126-150 (38.4-45.7)	151-175 (46.0-53.3)	176-200 (53.6-61.0)	201-225 (61.3-68.6)	226-250 (68.9-76.2)
18	3/8	1/2	1	2	3	5	6	7	8	9	11
		5/8	0	1	1	1	2	2	2	3	3
		3/4	0	0	0	0	1	1	1	1	1
24	3/8	5/8	0	1	2	2	3	3	4	5	5
		3/4	0	0	1	1	1	1	1	2	2
		7/8	0	0	0	0	0	1	1	1	1
30	3/8	5/8	1	2	3	3	4	5	6	7	8
		3/4	0	0	1	1	1	2	2	2	3
		7/8	0	0	0	0	1	1	1	1	1
36	3/8	5/8	1	2	4	5	6	8	9	10	12
		3/4	0	1	1	2	2	3	3	4	4
		7/8	0	0	0	1	1	1	1	2	2
42	3/8	3/4	0	1	2	2	3	4	4	5	6
		7/8	0	0	1	1	1	2	2	2	3
		1 1/8	0	0	0	0	0	0	0	0	0
48	3/8	3/4	0	1	2	3	4	5	5	6	7
		7/8	0	0	1	1	2	2	2	3	3
		1 1/8	0	0	0	0	0	0	0	1	1
60	3/8	3/4	1	2	4	5	6	7	9	10	11
		7/8	0	1	2	2	3	4	4	5	5
		1 1/8	0	0	0	1	1	1	1	1	1

Applications in this area may be long line and may have height restrictions. See the Residential Piping and Long Line Guideline.

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ACCESSORIES (For Copper Coil Models)

KIT NUMBER	KIT NAME	UNIT SIZE						
		18A003	24A003	30A003	36A003	42A003	48A003	60A003
KAACH1201AAA	CRANKCASE HEATER KIT					X	X	X
KAACH1401AAA	CRANKCASE HEATER KIT	X	X	X	X			
KAAFT0101AAA	FREEZE THERMISTOR KIT	X	X	X	X	X	X	X
KAATD0101TDR	TIME DELAY KIT	X	X	X	X	X	X	X
KSACY0101AAA	CYCLE PROTECTOR KIT	X	X	X	X	X	X	X
KAAWS0101AAA	WINTER START KIT	X	X	X	X	X	X	X
KSALA0301410	LOW AMBIENT COOLING KIT	X	X	X	X	X	X	X
KSALA0601AAA	MOTORMASTER KIT	X	X	X	X	X	X	X
KAALP0401PUR	LOW PRESSURE SWITCH KIT	X	X	X	X	X	X	X
KAAHI0501PUR	HIGH PRESSURE SWITCH KIT	X	X	X	X	X	X	X
KSASF0101AAA	SUPPORT FEET KIT (5 blocks)				X	X	X	X
KSASF0201AAA	SUPPORT FEET KIT (4 blocks)	X	X	X				
KSASH2301COP	SOUND BLANKET KIT			X		X	X	
KSASH2401COP	SOUND BLANKET KIT							X
KSASH2501COP	SOUND BLANKET KIT	X	X		X			
KAALS0201LLS*	SOLENOID VALVE KIT	X	X	X	X	X	X	X
KSAHS1501AAA	COMPRESSOR START ASSIST	X	X	X	X	X	X	X
KSATX0201PUR	TXV KIT (for use with copper coils)	X	X					
KSATX0301PUR	TXV KIT (for use with copper coils)			X	X	X		
KSATX0401PUR	TXV KIT (for use with copper coils)						X	
KSATX0501PUR	TXV KIT (for use with aluminum coils)							X
KSBTX0201PUR	TXV KIT (for use with aluminum coils)	X	X					
KSBTX0301PUR	TXV KIT (for use with aluminum coils)			X	X	X		
KSBTX0401PUR	TXV KIT (for use with aluminum coils)						X	X

X = Accessory
* Do not use hard shutoff TXV with liquid solenoid valve.

ACCESSORIES (for Aluminum Coil Models)

KIT NUMBER	KIT NAME	UNIT SIZE						
		18A0L3	24A0L3	30A0L3	36A0L3	42A0L3	48A0L3	60A0L3
KSAFT0101AAA	FRZ THERM KIT	X	X	X	X	X	X	X
KAATD0101TDR	TIME DELAY KIT	X	X	X	X	X	X	X
KSALA0301410	LOW AMBIENT COOLING KIT	X	X	X	X	X	X	X
KSALA1001AAA	MOTORMASTER KIT	X	X	X	X	X	X	X
KSAHS2501AAA	HARD START KIT	X	X	X	X	X		X
KSAHS2701AAA	HARD START KIT						X	
KSACY0101AAA	CYCLE PROTR KIT	X	X	X	X	X	X	X
KSASF0201AAA	SPRT FEET KIT	X	X	X	X	X	X	X
KAACS0201PTC	PTC KIT	X	X	X	X	X	X	X
KAALS0201LLS*	SOL VALVE KIT	X	X	X	X	X	X	X
KAAWS0101AAA	WINTER ST KIT	X	X	X	X	X	X	X
KAALP0401PUR	LOW PRESSURE SW KIT	X	X	X	X	X	X	X
KAAHI0501PUR	HIGH PRESSURE SW KIT	X	X	X	X	X	X	X
KAACH1701AAA	CRKC HTR KIT	X	X	X	X			
KAACH1601AAA	CRKC HTR KIT					X	X	X
KSASH2301COP	SOUND BLKT KIT	X		X				
KSASH2401COP	SOUND BLKT KIT					X	X	X
KSASH2501COP	SOUND BLKT KIT		X		X			
KSATX0201PUR	TXV KIT (for use with copper coils)	X	X	X				
KSATX0301PUR	TXV KIT (for use with copper coils)				X	X		
KSATX0401PUR	TXV KIT (for use with copper coils)						X	X
KSBTX0201PUR	TXV KIT (for use with aluminum coils	X	X	X				
KSBTX0301PUR	TXV KIT (for use with aluminum coils)				X	X		
KSBTX0401PUR	TXV KIT (for use with aluminum coils)						X	X

X = Accessory
* Do not use hard shutoff TXV with liquid solenoid valve.

Manufacturer reserves the right to change, at any time, specifications and designs without notice and without obligations.

ACCESSORY USAGE GUIDELINE

ACCESSORY	REQUIRED FOR LOW-AMBIENT COOLING APPLICATIONS (Below 55°F/12.8°C)	REQUIRED FOR LONG LINE APPLICATIONS*	REQUIRED FOR SEA COAST APPLICATIONS (Within 2 miles/3.22 km)
Ball Bearing Fan Motor	Standard	Standard	Standard
Compressor Start Assist Capacitor and Relay	Yes	Yes	No
Crankcase Heater	Yes	Yes	No
Evaporator Freeze Thermostat	Yes	No	No
Hard Shut-Off TXV	Yes	Yes	Yes
Liquid Line Solenoid Valve	No	No	No
Motor Master® Control or Low-ambient Pressure Switch	Yes	No	No
Support Feet	Recommended	No	Recommended
Winter Start Control	Yes #	No	No

*For tubing set lengths between 80 and 200 ft. (24.38 and 60.96 m) horizontal or 35 ft. ((10.7 m) vertical differential (total equivalent length), refer to the Residential Split-System Longline Application Guideline.

#Required if Low Pressure Switch is factory or field installed.

Accessory Description and Usage (Listed Alphabetically)

1. Ball-Bearing Fan Motor

A fan motor with ball bearings which permits speed reduction while maintaining bearing lubrication.

Usage Guideline:

Required on all units when MotorMaster® is used.

2. Compressor Start Assist - Capacitor and Relay

Start capacitor and relay gives a ”hard” boost to compressor motor at each start up.

Usage Guideline:

Required for reciprocating compressors in the following applications:

- Long line
- Low ambient cooling
- Hard shut off expansion valve on indoor coil
- Liquid line solenoid on indoor coil

Required for single-phase scroll compressors in the following applications:

- Long line
- Low ambient cooling

Suggested for all compressors in areas with a history of low voltage problems.

3. Crankcase Heater

An electric resistance heater which mounts to the base of the compressor to keep the lubricant warm during off cycles. Improves compressor lubrication on restart and minimizes the chance of liquid slugging.

Usage Guideline:

Required in low ambient cooling applications.

Required in long line applications.

Suggested in all commercial applications.

4. Cycle Protector

The cycle protector is designed to prevent compressor short cycling. This control provides an approximate 5-minute delay after power to the compressor has been interrupted for any reason, including power outage, protector control trip, thermostat jiggling, or normal cycling.

5. Evaporator Freeze Thermostat

An SPST temperature-actuated switch that stops unit operation when evaporator reaches freeze-up conditions.

Usage Guideline:

Required when low ambient kit has been added.

6. Low-Ambient Pressure Switch Kit

A long life pressure switch which is mounted to outdoor unit service valve. It is designed to cycle the outdoor fan motor in order to maintain head pressure within normal operating limits (approximately 100 psig to 225 psig). The control will maintain working head pressure at low-ambient temperatures down to 0°F (-18°C) when properly installed and also using wind baffles. Instructions provided in accessory kit.

Usage Guideline:

A Low-Ambient Pressure Switch or MotorMaster® Low-Ambient Controller must be used when cooling operation is used at outdoor temperatures below 55°F (12.8°C).

7. MotorMaster® Low-Ambient Controller

A fan-speed control device activated by a temperature sensor, designed to control condenser fan motor speed in response to the saturated, condensing temperature during operation in cooling mode only. For outdoor temperatures down to –10°F/–23.3°C), it maintains condensing temperature at 100°F ±10°F (37.8°C ±5.5°C).

Usage Guideline:

A MotorMaster® Low Ambient Controller or Low-Ambient Pressure Switch must be used when cooling operation is used at outdoor temperatures below 55°F (12.8°C).

Suggested for all commercial applications.

8. Outdoor Air Temperature Sensor

This device enables the thermostat to display the outdoor temperature. This device is also required to enable special thermostat features such as auxiliary heat lock out.

Usage Guideline:

Suggested for use with compatible Carrier thermostats.

9. Sound Hood

Wraparound sound reducing cover for the compressor. Reduces the sound level of the compressor.

Usage Guideline:

Suggested when unit is installed closer than 15 ft (4.57 m) to quiet areas, bedrooms, etc.

Suggested when unit is installed between two houses less than 10 ft (3.05 m) apart.

Manufacturer reserves the right to change, at any time, specifications and designs without notice and without obligations.

Accessory Description and Usage (Listed Alphabetically) Continued

10. Support Feet

Four or five stick-on plastic feet that raise the unit 4 in. (101.6 mm) above the mounting pad. This allows sand, dirt, and other debris to be flushed from the unit base, minimizing corrosion.

Usage Guideline:

Suggested in the following applications:

Coastal installations.

Windy areas or where debris is normally circulating.

Rooftop installations.

For improved sound ratings.

11. Thermostatic Expansion Valve (TXV)

A modulating flow-control valve which meters refrigerant liquid flow rate into the evaporator in response to the superheat of the refrigerant gas leaving the evaporator.

Kit includes valve, adapter tubes, and external equalizer tube. Hard shut off types are available.

NOTE: When using a hard shut off TXV with single phase reciprocating compressors, a Compressor Start Assist Capacitor and Relay is required.

Usage Guideline:

Required to achieve AHRI ratings in certain equipment combinations. Refer to combination ratings.

Hard shut off TXV or LLS required in air conditioner long line applications.

Required for use on all zoning systems.

12. Time-Delay Relay

An SPST delay relay which briefly continues operation of indoor blower motor to provide additional cooling after the compressor cycles off.

NOTE: Most indoor unit controls include this feature. For those that do not, use the guideline below.

Usage Guideline:

For improved efficiency ratings for certain combinations of indoor and outdoor units. Refer to AHRI Unitary Directory.

13. Winter Start Control

This control is designed to alleviate nuisance opening of the low-pressure switch by bypassing it for the first 3 minutes of operation.

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AHRI RATINGS

For AHRI ratings certificates, please refer to the AHRI directory www.ahridirectory.org
Additional ratings and system combinations can be accessed via the Ratings Database here: Carrier database here: www.MyCarrierRatings.com

ELECTRICAL DATA

	UNIT SIZE	V/PH	OPER VOLTS*		COMPR		FAN	MCA	MAX FUSE† or CKT BRK AMPS
			MAX	MIN	LRA	RLA	FLA		
Copper Coil Models	**18A003**	208/230/1	253	197	47.5	9.0	0.40	11.7	20
	24A003				62.9	10.9	0.50	14.1	20
	30A003				67.8	12.8	0.75	16.8	25
	36A003				79.0	13.6	1.10	18.1	30
	42A003				109.0	16.7	1.40	22.3	35
	48A003				105.5	15.5	1.40	20.8	35
	60A003				127.1	20.8	1.52	27.5	40
Aluminum Coil Models	**18A0L3**	208/230/1	253	197	48.0	8.0	0.40	10.4	15
	24A0L3				61.0	10.6	0.50	13.8	20
	30A0L3				64.3	11.8	0.75	15.6	25
	36A0L3				79.0	13.6	1.05	18.1	30
	42A0L3				123.9	19.2	1.40	25.4	40
	48A0L3				105.5	15.6	1.40	20.9	35
	60A0L3				152.5	23.7	1.52	31.1	50

*.Permissible limits of the voltage range at which the unit will operate satisfactorily
†.Time-Delay fuse.

FLA- Full Load Amps
LRA - Locked Rotor Amps
MCA- Minimum Circuit Amps
RLA- Rated Load Amps
NOTE:Control circuit is 24V on all units and requires external power source. Copper wire must be used from service disconnect to unit.
All motors/compressors contain internal overload protection.
Complies with 2010 requirements of ASHRAE Standards 90.1

A–Weighted Sound Power (dBA)

UNIT SIZE	STANDARD RATING	TYPICAL OCTAVE BAND SPECTRUM (without tone adjustment)						
		125	250	500	1000	2000	4000	8000
18	75	50.8	56.9	62.3	68.8	70.0	66.5	58.7
24	73	52.7	61.0	65.2	69.3	66.8	63.0	56.4
30	73	53.7	59.8	66.1	67.6	64.3	61.7	57.0
36	75	57.4	66.4	70.0	70.2	67.6	64.4	58.5
42	73	54.4	62.3	66.5	69.5	64.7	60.7	51.7
48	76	56.9	64.9	67.3	69.2	65.4	63.0	53.9
60	75	54.3	63.3	66.8	69.1	65.7	61.9	56.0

NOTE: Tested in compliance with AHRI 270–2008 (not listed with AHRI)

A–Weighted Sound Power (dBA) with sound shield

UNIT SIZE	Standard Rating (dBA)	TYPICAL OCTAVE BAND SPECTRUM (dBA without tone adjustment)						
		125	250	500	1000	2000	4000	8000
18	75	53.6	58.1	62.6	67.4	68.5	63.7	55.6
24	73	50.6	61.3	65.3	68.7	66.4	62.3	55.3
30	72	53.5	59.5	66.3	67.5	64.2	61.5	56.2
36	75	56.8	65.9	69.5	69.4	67.3	63.5	56.1
42	72	55.9	63.4	66.0	68.7	63.7	59.4	49.8
48	73	60.3	65.3	67.9	68.3	64.1	60.7	51.9
60	73	55.8	62.7	67.0	69.7	64.4	60.8	54.0

NOTE: Tested in compliance with AHRI 270–2008 (not listed with AHRI)

CHARGING SUB COOLING (TXV-TYPE EXPANSION DEVICE)

UNIT SIZE	required sub cooling (Copper Coil) °F (°C)	required sub cooling (Aluminum Coil) °F (°C)	INDOOR
18	16 (8.9)	14 (7.8)	TXV*
24	10 (5.6)	10 (5.6)	
30	12 (6.7)	11 (6.1)	
36	11 (6.1)	10 (5.6)	
42	9 (5.0)	10 (5.6)	
48	11 (6.1)	11 (6.1)	
60	13 (7.2)	13 (7.2)	

*.TXV must be ordered separately when indoor coil is not equipped with a TXV. TXV must be hard–shutoff type.
NOTE: Units are rated with 25 ft (7.6 m) of lineset length. See Vapor Line Sizing and Cooling Capacity Loss table when using other sizes and lengths of lineset.

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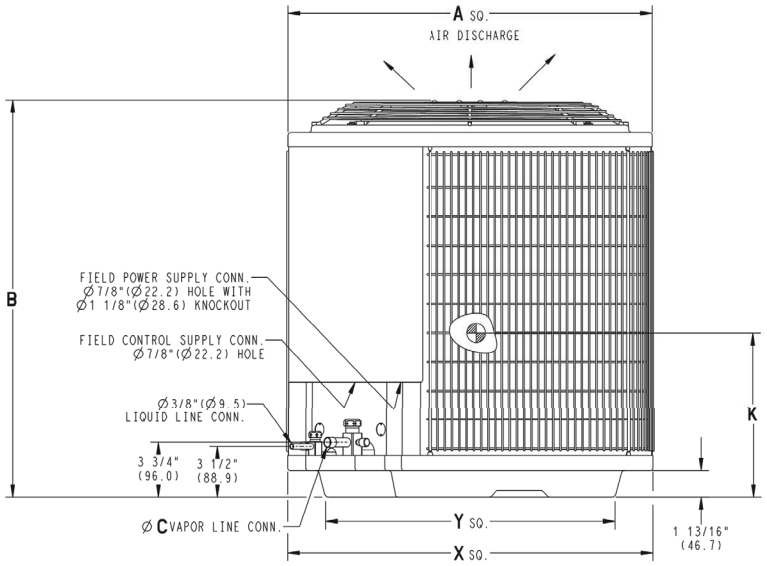
DIMENSIONS (Copper Coil Models)

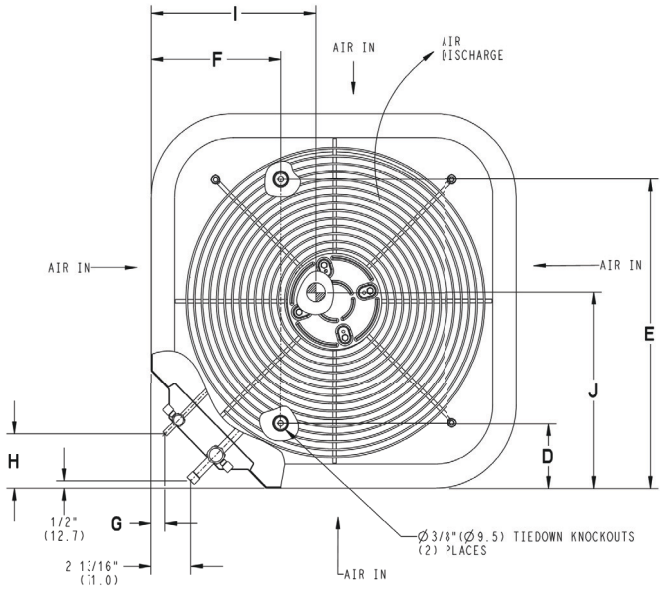
UNIT	SERIES	ELECTRICAL CHARACTERISTICS				A		B		C		D		E		F		G		H		I		J		K		OPERATING WEIGHT		SHIPPING WEIGHT		SHIPPING LENGTH / WIDTH (Sq.)		SHIPPING HEIGHT	
		208-230-1-60	208/230-3-60	460-3-60	575-3-60	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	Lbs	Kgs	Lbs	Kgs	INCH	MM	INCH	MM
24ACC418A0030011	0	Y	N	N	N	23 1/8	587.3	25 5/16	642.9	3/4	19.1	4 7/16	113.0	18 1/16	459.0	7 13/16	197.9	5/16	7.9	3	76.2	13	330.2	11 1/8	282.6	10 1/4	260.4	123	55.8	136	61.7	26	660.0	30 9/16	775.7
24ACC424A0030011	0	Y	N	N	N	25 3/4	654.0	25 5/16	642.4	3/4	19.1	4 7/16	113.0	21 1/4	539.9	9 1/8	231.3	5/16	7.9	3	76.2	13 5/8	346.1	12 1/8	308.0	9 7/8	250.8	119	54.0	132	59.9	28 3/4	730.0	30 9/16	775.7
24ACC430A0030011	0	Y	N	N	N	31 3/16	792.5	32 1/16	815.1	3/4	19.1	6 9/16	166.1	24 11/16	626.3	9 1/8	231.3	5/16	7.9	3	76.2	16 1/8	409.6	15 1/16	382.6	12 5/8	320.7	151	68.5	168	76.2	34 1/4	870.0	37 5/16	947.9
24ACC436A0030011	0	Y	N	N	N	31 3/16	792.5	25 5/16	642.4	7/8	22.2	6 9/16	166.1	24 11/16	626.3	9 1/8	231.3	5/16	7.9	3	76.2	15 9/16	395.3	16 1/2	419.1	10 1/4	260.4	134	60.8	150	68.0	34 1/4	870.0	30 1/2	775.2
24ACC442A0030011	0	Y	N	N	N	31 3/16	792.5	38 7/8	987.8	7/8	22.2	6 9/16	166.1	24 11/16	626.3	9 1/8	231.3	5/16	7.9	3	76.2	16 1/8	409.6	16 11/16	423.9	14	355.6	192	87.1	210	95.3	34 1/4	870.0	44 1/8	1120.7
24ACC448A0030011	0	Y	N	N	N	31 3/16	792.5	28 11/16	728.7	7/8	22.2	6 9/16	166.1	24 11/16	626.3	9 1/8	231.3	5/16	7.9	3	76.2	16 3/16	411.2	16 1/4	412.8	10 1/4	260.4	182	82.6	198	89.8	34 1/4	870.0	33 15/16	861.6
24ACC460A0030011	0	Y	N	N	N	31 3/16	792.5	32 1/16	815.1	7/8	22.2	6 9/16	166.1	24 11/16	626.3	9 1/8	231.3	5/16	7.9	3	76.2	15 1/2	393.7	16	406.4	10 7/8	276.2	197	89.4	214	97.1	34 1/4	870.0	37 5/16	947.9

Y=YES
N=NO

NOTES:

1. CENTER OF GRAVITY .





UNIT SIZE	"X" MINIMUM GROUND MOUNTING PAD APPLICATION DIMENSIONS		"Y" MINIMUM ROOF-TOP MOUNTING PAD APPLICATION DIMENSIONS	
18	23 1/8	587.3	17 7/8	454.6
24	25 3/4	654.0	20 7/16	518.5
30,36,42,48,60	31 3/16	792.5	22 15/16	583.2
-	35	889.0	26 3/4	679.7

NOTE: ALL DIMENSIONS IN INCH (MM)

U.S. ECCN: Not Subject to Regulation (N.S.R.)

SD5361-4 REV. E

Manufacturer reserves the right to change, at any time, specifications and designs without notice and without obligations.

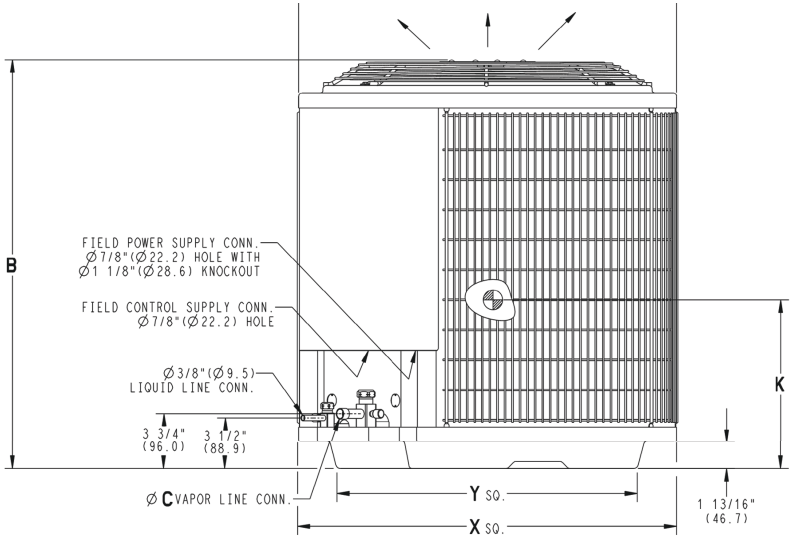
DIMENSIONS (Aluminum Coil Models)

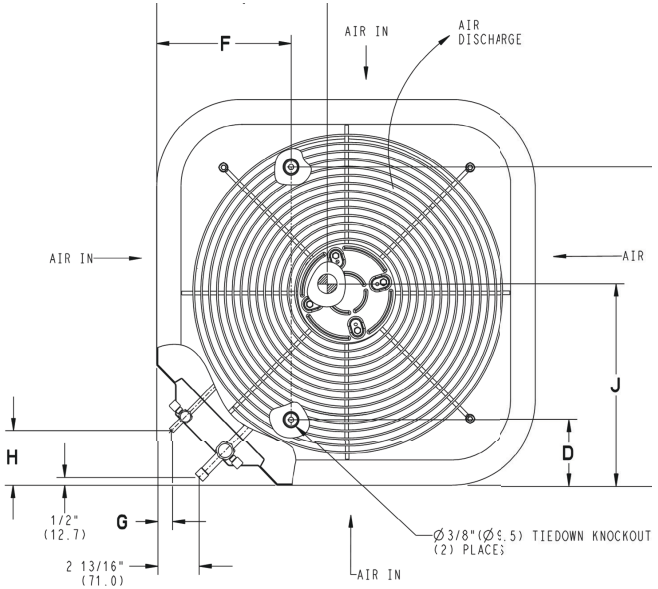
UNIT	SERIES	ELECTRICAL CHARACTERISTICS				A		B		C		D		E		F		G		H		I		J		K		OPERATING WEIGHT		SHIPPING WEIGHT		SHIPPING LENGTH / WIDTH (Sq.)		SHIPPING HEIGHT	
		208-230-1-60	208/230-3-60	460-3-60	575-3-60	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	Lbs	Kgs	Lbs	Kgs	INCH	MM	INCH	MM
24ACC418A0L30011	0	Y	N	N	N	23 1/8	587.3	25 5/16	642.9	3/4	19.1	4 7/16	113.0	18 1/16	459.0	7 13/16	197.9	5/16	7.9	3	76.2	12 3/4	323.9	12 1/4	311.2	11 1/2	292.1	102	46.3	115	52.2	26	660.0	30 9/16	775.7
24ACC424A0L30011	0	Y	N	N	N	25 3/4	654.0	25 5/16	642.4	3/4	19.1	4 7/16	113.0	21 1/4	539.9	9 1/8	231.3	5/16	7.9	3	76.2	14 1/2	368.3	14	355.6	11 3/4	298.5	107	48.3	121	54.7	28 3/4	730.0	30 9/16	775.7
24ACC430A0L30011	0	Y	N	N	N	31 3/16	792.5	32 1/16	815.1	3/4	19.1	6 9/16	166.1	24 11/16	626.3	9 1/8	231.3	5/16	7.9	3	76.2	14	355.6	14	355.6	14	355.6	143	64.7	168	76.0	34 1/4	870.0	37 5/16	947.9
24ACC436A0L30011	0	Y	N	N	N	31 3/16	792.5	25 5/16	642.4	7/8	22.2	6 9/16	166.1	24 11/16	626.3	9 1/8	231.3	5/16	7.9	3	76.2	14	355.6	14 1/2	368.3	11	279.4	128	58.1	147	66.5	34 1/4	870.0	30 1/2	775.2
24ACC442A0L30011	0	Y	N	N	N	31 3/16	792.5	42 5/16	1074.2	7/8	22.2	6 9/16	166.1	24 11/16	626.3	9 1/8	231.3	5/16	7.9	3	76.2	15 3/4	400.1	15 1/2	393.7	18 1/2	469.9	188	85.5	209	95.0	34 1/4	870.0	47 1/2	1207.1
24ACC448A0L30011	0	Y	N	N	N	31 3/16	792.5	28 11/16	728.7	7/8	22.2	6 9/16	166.1	24 11/16	626.3	9 1/8	231.3	5/16	7.9	3	76.2	15	381.0	15 1/2	393.7	13 1/2	342.9	169	76.4	190	86.0	34 1/4	870.0	33 15/16	861.6
24ACC460A0L30011	0	Y	N	N	N	31 3/16	792.5	35 1/2	901.4	7/8	22.2	6 9/16	166.1	24 11/16	626.3	9 1/8	231.3	5/16	7.9	3	76.2	13	330.2	16	406.4	16	406.4	209	94.6	234	106.0	34 1/4	870.0	40 3/4	1034.3

Y=YES
N=NO

NOTES:

1. CENTER OF GRAVITY .





UNIT SIZE	"X" MINIMUM GROUND MOUNTING PAD APPLICATION DIMENSIONS		"Y" MINIMUM ROOF-TOP MOUNTING PAD APPLICATION DIMENSIONS	
18	23 1/8	587.3	17 7/8	454.6
24	25 3/4	654.0	20 7/16	518.5
30,36,42,48,60	31 3/16	792.5	22 15/16	583.2
-	35	889.0	26 3/4	679.7

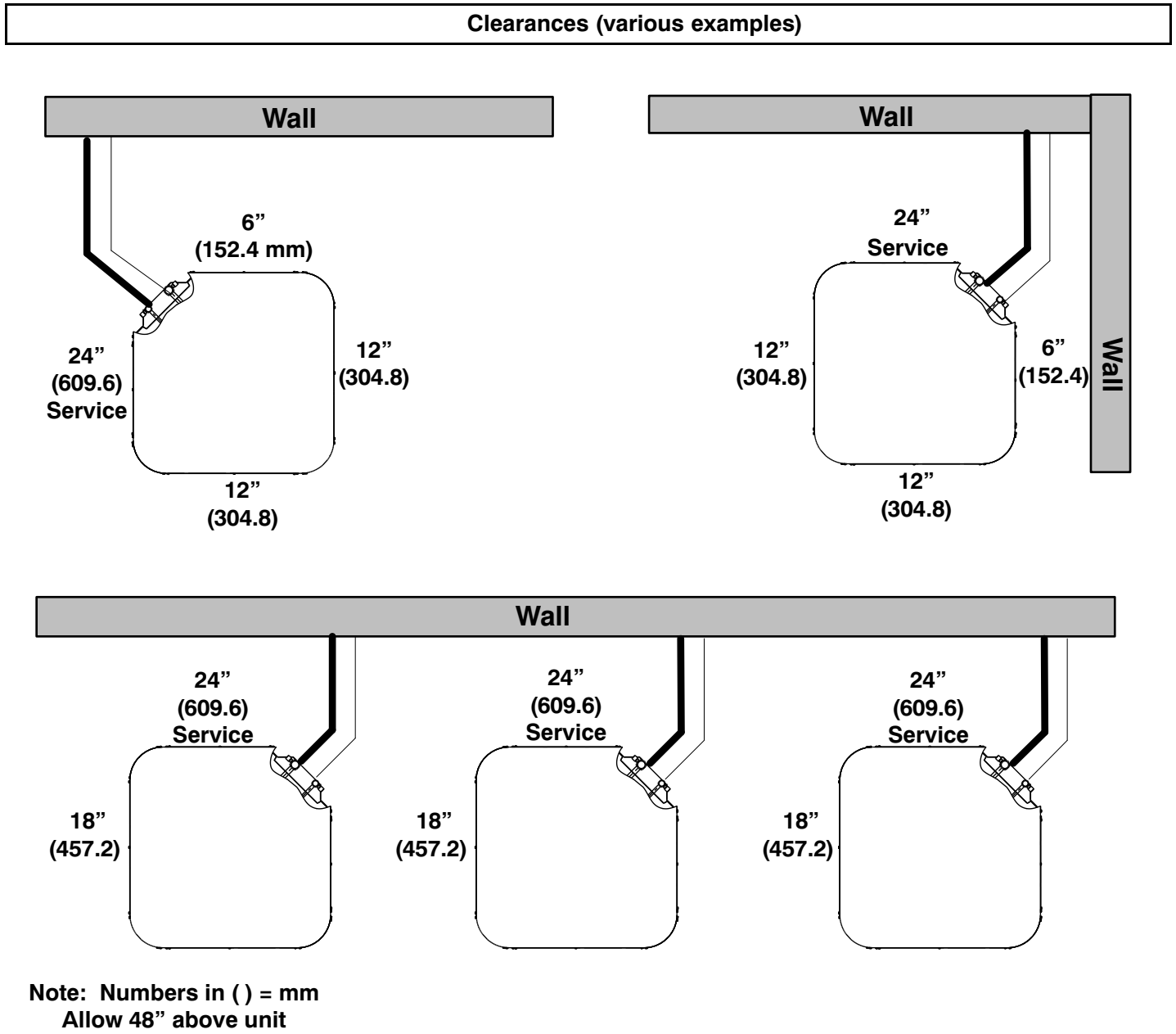
NOTE: ALL DIMENSIONS IN INCH (MM)

U.S. ECCN: Not Subject to Regulation (N.S.R.)

ACC4 Aluminum SD5602-4 REV

Manufacturer reserves the right to change, at any time, specifications and designs without notice and without obligations.

CLEARANCES



IMPORTANT: When installing multiple units in an alcove, roof well, or partially enclosed area, ensure there is adequate ventilation to prevent re-circulation of discharge air.

Manufacturer reserves the right to change, at any time, specifications and designs without notice and without obligations.

DETAILED COOLING CAPACITIES# -COPPER COIL MODELS

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																	
		75 (23.9)		85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)			
CFM	EWB °F (°C)	Capacity MBtuh		Total System KW**	Capacity MBtuh		Total System KW**	Capacity MBtuh		Total System KW**	Capacity MBtuh		Total System KW**	Capacity MBtuh		Total System KW**	Capacity MBtuh		Total System KW**
		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡	
24ACC418A0030 Outdoor Section With CAP1917AL* Indoor Section**																			
525	72 (22.2)	20.84	11.15	1.18	20.08	10.86	1.33	19.26	10.56	1.49	18.34	10.22	1.67	17.28	9.84	1.89	16.07	9.40	2.13
	67 (19.4)	19.05	13.80	1.19	18.30	13.49	1.34	17.50	13.16	1.50	16.60	12.80	1.68	15.58	12.39	1.89	14.40	11.93	2.13
	63 (17.2)††	17.78	13.32	1.20	17.04	12.99	1.34	16.24	12.64	1.50	15.35	12.25	1.68	14.35	11.82	1.89	13.21	11.33	2.14
	62 (16.7)	17.42	16.39	1.20	16.70	16.06	1.34	15.92	15.68	1.50	15.12	15.12	1.68	14.34	14.34	1.89	13.45	13.45	2.13
	57 (13.9)	17.00	17.00	1.20	16.41	16.41	1.34	15.79	15.79	1.50	15.10	15.10	1.68	14.32	14.32	1.89	13.43	13.43	2.13
600	72 (22.2)	21.18	11.76	1.21	20.40	11.48	1.35	19.56	11.17	1.52	18.61	10.83	1.70	17.52	10.45	1.92	16.27	10.01	2.16
	67 (19.4)	19.36	14.78	1.22	18.61	14.48	1.36	17.78	14.15	1.52	16.86	13.79	1.71	15.81	13.37	1.92	14.62	12.90	2.16
	63 (17.2)††	18.10	14.24	1.23	17.35	13.91	1.37	16.53	13.56	1.53	15.62	13.17	1.71	14.59	12.73	1.92	13.42	12.24	2.16
	62 (16.7)	17.79	17.69	1.23	17.14	17.14	1.37	16.49	16.49	1.53	15.76	15.76	1.71	14.94	14.94	1.92	14.00	14.00	2.16
	57 (13.9)	17.72	17.72	1.23	17.11	17.11	1.37	16.46	16.46	1.53	15.74	15.74	1.71	14.92	14.92	1.92	13.98	13.98	2.16
675	72 (22.2)	21.42	12.36	1.23	20.63	12.08	1.38	19.76	11.77	1.55	18.80	11.43	1.73	17.69	11.05	1.94	16.41	10.61	2.19
	67 (19.4)	19.60	15.75	1.25	18.83	15.44	1.39	17.99	15.11	1.55	17.05	14.75	1.73	15.99	14.33	1.95	14.77	13.85	2.19
	63 (17.2)††	18.34	15.14	1.26	17.57	14.81	1.40	16.74	14.45	1.56	15.82	14.06	1.74	14.77	13.61	1.95	13.59	13.10	2.19
	62 (16.7)	18.33	18.33	1.25	17.71	17.71	1.40	17.04	17.04	1.55	16.28	16.28	1.74	15.43	15.43	1.95	14.46	14.46	2.19
	57 (13.9)	18.31	18.31	1.25	17.68	17.68	1.40	17.01	17.01	1.55	16.26	16.26	1.74	15.41	15.41	1.95	14.44	14.44	2.19
24ACC424A0030 Outdoor Section With CAP2517AL* Indoor Section**																			
700	72 (22.2)	27.81	14.89	1.62	26.74	14.49	1.80	25.61	14.07	2.00	24.39	13.62	2.23	23.06	13.14	2.51	21.56	12.60	2.83
	67 (19.4)	25.46	18.45	1.62	24.46	18.04	1.80	23.40	17.61	2.00	22.25	17.13	2.23	21.01	16.63	2.51	19.58	16.06	2.83
	63 (17.2)††	23.79	17.82	1.62	22.84	17.40	1.80	21.83	16.94	2.00	20.74	16.47	2.24	19.53	15.94	2.52	18.16	15.36	2.85
	62 (16.7)	23.31	21.92	1.62	22.38	21.48	1.80	21.40	21.01	2.00	20.37	20.37	2.24	19.43	19.43	2.51	18.33	18.33	2.84
	57 (13.9)	22.74	22.74	1.62	22.00	22.00	1.80	21.20	21.20	2.00	20.34	20.34	2.24	19.39	19.39	2.51	18.30	18.30	2.84
800	72 (22.2)	28.26	15.70	1.66	27.15	15.30	1.84	25.97	14.87	2.04	24.70	14.42	2.27	23.33	13.94	2.54	21.80	13.40	2.87
	67 (19.4)	25.87	19.75	1.66	24.84	19.33	1.84	23.75	18.90	2.04	22.56	18.42	2.27	21.27	17.91	2.55	19.81	17.34	2.87
	63 (17.2)††	24.22	19.04	1.66	23.25	18.61	1.84	22.19	18.15	2.04	21.05	17.67	2.28	19.82	17.14	2.55	18.40	16.54	2.88
	62 (16.7)	23.79	23.64	1.66	22.94	22.94	1.84	22.09	22.09	2.04	21.17	21.17	2.27	20.16	20.16	2.55	19.00	19.00	2.87
	57 (13.9)	23.69	23.69	1.66	22.90	22.90	1.84	22.06	22.06	2.04	21.14	21.14	2.27	20.13	20.13	2.55	18.98	18.98	2.87
900	72 (22.2)	28.57	16.50	1.70	27.42	16.10	1.87	26.21	15.67	2.08	24.91	15.21	2.31	23.51	14.73	2.58	21.94	14.19	2.90
	67 (19.4)	26.18	21.03	1.70	25.11	20.60	1.88	23.99	20.16	2.08	22.77	19.68	2.31	21.46	19.16	2.58	19.98	18.58	2.91
	63 (17.2)††	24.53	20.22	1.70	23.52	19.79	1.88	22.44	19.33	2.08	21.28	18.83	2.32	20.02	18.30	2.59	18.58	17.68	2.92
	62 (16.7)	24.50	24.50	1.70	23.67	23.67	1.88	22.78	22.78	2.08	21.82	21.82	2.31	20.76	20.76	2.59	19.55	19.55	2.91
	57 (13.9)	24.47	24.47	1.70	23.64	23.64	1.88	22.75	22.75	2.08	21.79	21.79	2.31	20.73	20.73	2.59	19.52	19.52	2.91
24ACC430A0030 Outdoor Section With CAP3721AL* Indoor Section**																			
875	72 (22.2)	34.17	17.94	1.96	32.63	17.38	2.16	31.02	16.79	2.40	29.33	16.18	2.66	27.51	15.54	2.98	25.57	14.86	3.35
	67 (19.4)	31.02	22.10	1.97	29.61	21.53	2.17	28.14	20.94	2.40	26.58	20.31	2.66	24.91	19.66	2.98	23.13	18.96	3.35
	63 (17.2)††	28.77	21.25	1.97	27.46	20.67	2.17	26.08	20.08	2.40	24.62	19.45	2.67	23.07	18.79	2.98	21.39	18.09	3.35
	62 (16.7)	28.19	26.15	1.97	26.92	25.56	2.17	25.60	25.36	2.40	24.34	24.34	2.66	23.11	23.11	2.98	21.76	21.76	3.35
	57 (13.9)	27.51	27.51	1.97	26.51	26.51	2.17	25.45	25.45	2.40	24.30	24.30	2.66	23.07	23.07	2.98	21.73	21.73	3.35
1000	72 (22.2)	34.79	18.95	2.01	33.19	18.37	2.21	31.51	17.78	2.44	29.73	17.16	2.71	27.85	16.51	3.03	25.85	15.82	3.40
	67 (19.4)	31.61	23.69	2.01	30.13	23.11	2.21	28.60	22.50	2.44	26.98	21.87	2.71	25.25	21.19	3.03	23.42	20.49	3.40
	63 (17.2)††	29.34	22.73	2.02	27.97	22.14	2.22	26.53	21.53	2.45	25.01	20.89	2.71	23.40	20.21	3.03	21.68	19.49	3.40
	62 (16.7)	28.87	28.71	2.01	27.71	27.71	2.22	26.56	26.56	2.45	25.33	25.33	2.71	24.00	24.00	3.03	22.57	22.57	3.40
	57 (13.9)	28.75	28.75	2.01	27.66	27.66	2.22	26.52	26.52	2.45	25.29	25.29	2.71	23.97	23.97	3.03	22.54	22.54	3.40
1125	72 (22.2)	35.24	19.93	2.06	33.57	19.35	2.26	31.84	18.74	2.49	30.02	18.11	2.76	28.08	17.45	3.08	26.02	16.75	3.45
	67 (19.4)	32.05	25.24	2.06	30.53	24.64	2.26	28.94	24.02	2.49	27.27	23.37	2.76	25.51	22.69	3.08	23.63	21.95	3.45
	63 (17.2)††	29.77	24.16	2.06	28.34	23.56	2.26	26.86	22.94	2.49	25.30	22.28	2.76	23.65	21.59	3.08	21.90	20.83	3.45
	62 (16.7)	29.83	29.83	2.06	28.67	28.67	2.26	27.45	27.45	2.49	26.15	26.15	2.76	24.74	24.74	3.07	23.23	23.23	3.45
	57 (13.9)	29.79	29.79	2.06	28.63	28.63	2.26	27.41	27.41	2.49	26.11	26.11	2.76	24.71	24.71	3.07	23.20	23.20	3.45

Manufacturer reserves the right to change, at any time, specifications and designs without notice and without obligations.

DETAILED COOLING CAPACITIES# -COPPER COIL MODELS (CONTINUED)

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																	
		75 (23.9)		85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)			
CFM	EWB °F (°C)	Capacity MBtuh		Total System KW**	Capacity MBtuh		Total System KW**	Capacity MBtuh		Total System KW**	Capacity MBtuh		Total System KW**	Capacity MBtuh		Total System KW**	Capacity MBtuh		Total System KW**
		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡	
24ACC436A0030 Outdoor Section With CAP3721AL* Indoor Section**																			
1050	72 (22.2)	40.58	21.42	2.31	38.93	20.83	2.59	36.79	20.08	2.87	34.42	19.25	3.18	32.00	18.42	3.55	29.66	17.62	4.03
	67 (19.4)	37.70	26.94	2.31	36.20	26.34	2.58	34.20	25.55	2.85	31.97	24.68	3.15	29.69	23.80	3.52	27.50	22.96	4.00
	63 (17.2)††	35.48	26.09	2.32	34.08	25.48	2.59	32.18	24.68	2.85	30.06	23.78	3.15	27.86	22.87	3.52	25.83	22.03	3.99
	62 (16.7)	34.87	32.22	2.32	33.53	31.59	2.59	31.73	31.66	2.85	29.96	29.96	3.14	28.15	28.15	3.51	26.42	26.42	3.99
	57 (13.9)	34.27	34.27	2.33	33.16	33.16	2.59	31.65	31.65	2.85	29.92	29.92	3.14	28.11	28.11	3.51	26.38	26.38	3.99
1200	72 (22.2)	40.97	22.55	2.37	39.26	21.96	2.65	37.06	21.19	2.93	34.63	20.36	3.24	32.16	19.53	3.61	29.77	18.73	4.09
	67 (19.4)	38.15	28.79	2.37	36.60	28.19	2.64	34.54	27.39	2.91	32.25	26.51	3.21	29.93	25.62	3.58	27.69	24.75	4.06
	63 (17.2)††	35.99	27.83	2.38	34.54	27.22	2.64	32.59	26.40	2.91	30.39	25.49	3.21	28.15	24.56	3.58	26.06	23.69	4.05
	62 (16.7)	35.60	35.60	2.38	34.41	34.41	2.64	32.77	32.77	2.90	30.93	30.93	3.21	29.01	29.01	3.58	27.15	27.15	4.05
	57 (13.9)	35.56	35.56	2.38	34.36	34.36	2.64	32.73	32.73	2.90	30.89	30.89	3.21	28.97	28.97	3.58	27.12	27.12	4.05
1350	72 (22.2)	41.20	23.64	2.43	39.44	23.04	2.71	37.20	22.28	2.99	34.73	21.45	3.30	32.22	20.61	3.68	29.79	19.80	4.15
	67 (19.4)	38.46	30.60	2.43	36.86	29.99	2.70	34.76	29.18	2.97	32.44	28.28	3.27	30.09	27.36	3.64	27.84	26.42	4.12
	63 (17.2)††	36.36	29.53	2.43	34.86	28.90	2.70	32.86	28.07	2.96	30.64	27.14	3.27	28.36	26.18	3.64	26.26	26.02	4.11
	62 (16.7)	36.61	36.61	2.43	35.33	35.33	2.70	33.60	33.60	2.96	31.66	31.66	3.27	29.66	29.66	3.64	27.70	27.70	4.12
	57 (13.9)	36.57	36.57	2.43	35.29	35.29	2.70	33.57	33.57	2.96	31.63	31.63	3.27	29.63	29.63	3.64	27.67	27.67	4.12
24ACC442A0030 Outdoor Section With CAP4321AL* Indoor Section**																			
1225	72 (22.2)	46.79	25.57	2.60	44.65	24.77	2.86	42.40	23.95	3.15	40.04	23.09	3.47	37.52	22.19	3.84	34.83	21.24	4.26
	67 (19.4)	42.38	31.68	2.61	40.45	30.89	2.86	38.42	30.07	3.15	36.27	29.20	3.47	33.99	28.29	3.84	31.54	27.32	4.25
	63 (17.2)††	39.24	30.38	2.61	37.46	29.59	2.86	35.58	28.77	3.15	33.58	27.91	3.47	31.47	26.99	3.83	29.19	26.02	4.24
	62 (16.7)	38.60	37.63	2.61	36.93	36.70	2.86	35.35	35.35	3.14	33.75	33.75	3.47	32.02	32.02	3.83	30.14	30.14	4.24
	57 (13.9)	38.17	38.17	2.61	36.78	36.78	2.86	35.29	35.29	3.14	33.70	33.70	3.47	31.98	31.98	3.83	30.10	30.10	4.24
1400	72 (22.2)	47.55	27.01	2.67	45.33	26.20	2.93	42.99	25.37	3.21	40.52	24.49	3.54	37.91	23.57	3.91	35.15	22.61	4.32
	67 (19.4)	43.11	33.98	2.67	41.10	33.17	2.93	38.99	32.32	3.21	36.77	31.44	3.54	34.41	30.50	3.90	31.91	29.50	4.32
	63 (17.2)††	39.94	32.51	2.67	38.08	31.70	2.93	36.14	30.86	3.21	34.06	29.97	3.54	31.88	29.03	3.90	29.56	28.02	4.31
	62 (16.7)	39.87	39.87	2.67	38.37	38.37	2.93	36.76	36.76	3.21	35.04	35.04	3.54	33.19	33.19	3.90	31.17	31.17	4.32
	57 (13.9)	39.81	39.81	2.67	38.31	38.31	2.93	36.71	36.71	3.21	34.99	34.99	3.54	33.14	33.14	3.90	31.13	31.13	4.31
1575	72 (22.2)	48.11	28.39	2.74	45.80	27.57	2.99	43.39	26.72	3.28	40.85	25.83	3.61	38.17	24.91	3.98	35.33	23.93	4.39
	67 (19.4)	43.66	36.19	2.74	41.58	35.36	2.99	39.41	34.49	3.28	37.13	33.57	3.60	34.73	32.60	3.97	32.20	31.50	4.38
	63 (17.2)††	40.46	34.55	2.74	38.54	33.72	2.99	36.53	32.85	3.28	34.42	31.93	3.60	32.20	30.94	3.97	29.88	29.72	4.38
	62 (16.7)	41.18	41.18	2.74	39.58	39.58	2.99	37.88	37.88	3.28	36.06	36.06	3.60	34.10	34.10	3.97	31.98	31.98	4.38
	57 (13.9)	41.12	41.12	2.74	39.53	39.53	2.99	37.83	37.83	3.28	36.01	36.01	3.60	34.05	34.05	3.97	31.94	31.94	4.38
24ACC448A0030 Outdoor Section With CAP6124AL* Indoor Section**																			
1400	72 (22.2)	53.91	26.70	3.12	51.70	25.95	3.46	49.29	25.14	3.81	46.61	24.25	4.20	43.50	23.23	4.66	39.94	22.07	5.22
	67 (19.4)	49.07	33.08	3.15	47.03	32.30	3.47	44.83	31.48	3.81	42.36	30.56	4.19	39.52	29.52	4.65	36.26	28.33	5.22
	63 (17.2)††	45.60	31.80	3.16	43.67	31.02	3.48	41.61	30.19	3.81	39.31	29.27	4.18	36.66	28.22	4.64	33.61	27.02	5.22
	62 (16.7)	44.81	39.26	3.16	42.96	38.43	3.48	41.03	40.90	3.80	39.14	39.14	4.18	36.99	36.99	4.64	34.49	34.49	5.22
	57 (13.9)	44.02	44.02	3.16	42.51	42.51	3.48	40.91	40.91	3.80	39.08	39.08	4.18	36.94	36.94	4.64	34.44	34.44	5.22
1600	72 (22.2)	54.74	28.18	3.20	52.46	27.42	3.54	49.97	26.60	3.89	47.17	25.68	4.28	43.95	24.64	4.74	40.30	23.48	5.30
	67 (19.4)	49.91	35.43	3.22	47.78	34.64	3.55	45.50	33.80	3.89	42.95	32.87	4.27	40.01	31.79	4.73	36.67	30.58	5.30
	63 (17.2)††	46.41	33.99	3.23	44.41	33.19	3.55	42.28	32.35	3.89	39.89	31.40	4.26	37.15	30.32	4.72	34.04	29.09	5.30
	62 (16.7)	45.97	45.97	3.23	44.36	44.36	3.55	42.62	42.62	3.89	40.65	40.65	4.27	38.35	38.35	4.73	35.68	35.68	5.30
	57 (13.9)	45.90	45.90	3.23	44.29	44.29	3.55	42.56	42.56	3.89	40.59	40.59	4.27	38.30	38.30	4.73	35.63	35.63	5.30
1800	72 (22.2)	55.35	29.59	3.27	53.00	28.82	3.62	50.43	27.99	3.97	47.55	27.07	4.35	44.26	26.02	4.82	40.51	24.83	5.38
	67 (19.4)	50.51	37.70	3.29	48.34	36.90	3.63	45.99	36.05	3.97	43.37	35.09	4.35	40.38	33.98	4.81	37.00	32.68	5.38
	63 (17.2)††	47.02	36.10	3.31	44.97	35.29	3.63	42.77	34.42	3.97	40.33	33.45	4.34	37.54	32.33	4.81	34.39	30.98	5.38
	62 (16.7)	47.51	47.51	3.31	45.80	45.80	3.63	43.96	43.96	3.97	41.87	41.87	4.35	39.44	39.44	4.81	36.63	36.63	5.38
	57 (13.9)	47.45	47.45	3.31	45.74	45.74	3.63	43.91	43.91	3.97	41.82	41.82	4.35	39.40	39.40	4.81	36.58	36.58	5.38

Manufacturer reserves the right to change, at any time, specifications and designs without notice and without obligations.

DETAILED COOLING CAPACITIES# -COPPER COIL MODELS (CONTINUED)

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																	
		75 (23.9)		85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)			
CFM	EWB °F (°C)	Capacity MBtuh		Total System KW**	Capacity MBtuh		Total System KW**	Capacity MBtuh		Total System KW**	Capacity MBtuh		Total System KW**	Capacity MBtuh		Total System KW**	Capacity MBtuh		Total System KW**
		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡	
24ACC460A0030 Outdoor Section With CAP**6024AL* Indoor Section																			
1750	72 (22.2)	68.41	35.82	4.01	65.35	34.67	4.39	62.15	33.49	4.86	58.70	32.23	5.39	55.01	30.89	5.96	50.87	29.41	6.55
	67 (19.4)	62.24	44.04	4.01	59.41	42.88	4.38	56.50	41.69	4.83	53.38	40.43	5.35	50.00	39.08	5.91	46.23	37.59	6.49
	63 (17.2)††	57.78	42.37	4.02	55.13	41.19	4.37	52.41	39.99	4.81	49.54	38.75	5.32	46.39	37.40	5.87	42.89	35.91	6.45
	62 (16.7)	56.92	52.17	4.02	54.40	50.96	4.37	51.84	49.69	4.81	49.16	49.16	5.32	46.64	46.64	5.88	43.73	43.73	6.46
	57 (13.9)	55.64	55.64	4.02	53.56	53.56	4.37	51.43	51.43	4.81	49.13	49.13	5.32	46.56	46.56	5.88	43.68	43.68	6.46
2000	72 (22.2)	69.54	37.55	4.10	66.36	36.39	4.49	63.04	35.18	4.96	59.50	33.91	5.49	55.63	32.53	6.06	51.36	31.03	6.66
	67 (19.4)	63.30	46.83	4.11	60.35	45.64	4.47	57.34	44.44	4.93	54.11	43.16	5.45	50.61	41.77	6.01	46.74	40.24	6.60
	63 (17.2)††	58.79	44.95	4.11	56.04	43.76	4.47	53.23	42.55	4.91	50.24	41.27	5.42	47.00	39.89	5.98	43.39	38.33	6.56
	62 (16.7)	58.25	55.83	4.11	55.72	55.33	4.47	53.37	53.37	4.91	50.91	50.91	5.43	48.16	48.16	5.99	45.09	45.09	6.58
	57 (13.9)	57.80	57.80	4.11	55.59	55.59	4.47	53.30	53.30	4.91	50.84	50.84	5.43	48.11	48.11	5.99	45.03	45.03	6.58
2250	72 (22.2)	70.37	39.17	4.20	67.10	37.99	4.59	63.67	36.77	5.06	60.02	35.48	5.59	56.04	34.08	6.17	51.66	32.55	6.76
	67 (19.4)	64.08	49.47	4.20	61.08	48.28	4.57	57.95	47.04	5.03	54.64	45.73	5.55	51.07	44.31	6.12	47.12	42.69	6.70
	63 (17.2)††	59.56	47.41	4.20	56.73	46.20	4.56	53.82	44.95	5.01	50.77	43.65	5.52	47.44	42.21	6.08	43.78	40.57	6.66
	62 (16.7)	59.69	59.69	4.20	57.32	57.32	4.56	54.90	54.90	5.02	52.28	52.28	5.53	49.41	49.41	6.10	46.17	46.17	6.69
	57 (13.9)	59.58	59.58	4.20	57.25	57.25	4.56	54.83	54.83	5.02	52.23	52.23	5.53	49.35	49.35	6.10	46.12	46.12	6.69

† Total and sensible capacities are net capacities. Blower motor heat has been subtracted.

‡ Sensible capacities shown are based on 80°F (27°C) entering air at the indoor coil. For sensible capacities at other than 80°F (27°C), deduct 835 Btuh (245 kW) per 1000 CFM (480 L/S) of indoor coil air for each degree below 80°F (27°C), or add 835 Btuh (245 kW) per 1000 CFM (480 L/S) of indoor coil air per degree above 80°F (27°C).

Detailed cooling capacities are based on indoor and outdoor unit at the same elevation per AHRI standard 210/240-2008. If additional tubing length and/or indoor unit is located above outdoor unit, a slight variation in capacity may occur.

** System kw is total of indoor and outdoor unit kilowatts.

†† At TVA rating indoor condition (75°F edb/63°F ewb). All other indoor air temperatures are at 80°F edb.

NOTE: When the required data falls between the published data, interpolation may be performed. Extrapolation is not an acceptable practice.

EWB — Entering Wet Bulb

Manufacturer reserves the right to change, at any time, specifications and designs without notice and without obligations.

DETAILED COOLING CAPACITIES# -ALUMINUM COIL MODELS

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
CFM	EWB	Capacity MBtuh		Total System KW**	Capacity MBtuh		Total System KW**	Capacity MBtuh		Total System KW**	Capacity MBtuh		Total System KW**	Capacity MBtuh		Total System KW**	Capacity MBtuh		Total System KW**
		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡	
24ACC418A0L30 Outdoor Section With CAP1917AL* Indoor Section**																			
525	72 (22.2)	20.72	10.30	1.17	19.94	10.02	1.32	19.05	9.71	1.48	18.06	9.36	1.68	16.95	8.98	1.90	15.70	8.56	2.16
	67 (19.4)	18.85	12.65	1.18	18.04	12.34	1.33	17.18	12.00	1.50	16.23	11.64	1.69	15.18	11.24	1.91	14.01	10.81	2.17
	63 (17.2)††	17.47	12.17	1.19	16.68	11.83	1.34	15.83	11.49	1.51	14.92	11.11	1.70	13.92	10.71	1.93	12.81	10.26	2.19
	62 (16.7)	17.12	14.94	1.20	16.33	14.60	1.34	15.52	14.24	1.51	14.67	14.67	1.70	13.89	13.89	1.92	13.03	13.03	2.18
	57 (13.9)	16.60	16.60	1.20	15.99	15.99	1.34	15.34	15.34	1.51	14.64	14.64	1.70	13.87	13.87	1.92	13.00	13.00	2.18
600	72 (22.2)	21.10	10.86	1.19	20.29	10.58	1.34	19.39	10.27	1.51	18.37	9.93	1.70	17.21	9.54	1.92	15.93	9.12	2.18
	67 (19.4)	19.21	13.56	1.21	18.39	13.25	1.35	17.50	12.91	1.52	16.52	12.54	1.71	15.43	12.14	1.94	14.23	11.70	2.20
	63 (17.2)††	17.84	13.02	1.22	17.01	12.68	1.37	16.15	12.33	1.53	15.20	11.95	1.73	14.17	11.53	1.95	13.02	11.08	2.22
	62 (16.7)	17.53	16.16	1.22	16.76	16.76	1.37	16.07	16.07	1.53	15.33	15.33	1.72	14.50	14.50	1.94	13.59	13.59	2.20
	57 (13.9)	17.38	17.38	1.22	16.73	16.73	1.37	16.05	16.05	1.53	15.30	15.30	1.72	14.48	14.48	1.95	13.56	13.56	2.20
675	72 (22.2)	21.36	11.40	1.22	20.55	11.13	1.37	19.62	10.82	1.54	18.58	10.48	1.73	17.40	10.09	1.95	16.08	9.66	2.21
	67 (19.4)	19.48	14.44	1.23	18.65	14.13	1.38	17.74	13.79	1.55	16.74	13.42	1.74	15.63	13.01	1.96	14.41	12.56	2.22
	63 (17.2)††	18.11	13.84	1.25	17.27	13.50	1.39	16.38	13.14	1.56	15.41	12.76	1.75	14.36	12.34	1.98	13.19	11.87	2.24
	62 (16.7)	18.05	18.05	1.24	17.38	17.38	1.39	16.66	16.66	1.55	15.88	15.88	1.75	15.02	15.02	1.97	14.05	14.05	2.23
	57 (13.9)	18.02	18.02	1.24	17.35	17.35	1.39	16.64	16.64	1.56	15.86	15.86	1.75	14.99	14.99	1.97	14.03	14.03	2.23
24ACC424A0L30 Outdoor Section With CAP2517AL* Indoor Section**																			
700	72 (22.2)	27.57	14.08	1.58	26.45	13.68	1.77	25.23	13.26	1.99	23.93	12.80	2.25	22.50	12.31	2.54	20.87	11.76	2.88
	67 (19.4)	25.27	17.49	1.60	24.22	17.08	1.78	23.08	16.63	2.00	21.83	16.15	2.25	20.45	15.63	2.55	18.90	15.04	2.89
	63 (17.2)††	23.61	16.89	1.61	22.61	16.46	1.79	21.50	16.00	2.01	20.29	15.49	2.26	18.93	14.93	2.56	17.47	14.34	2.90
	62 (16.7)	23.17	20.80	1.61	22.20	20.36	1.79	21.14	19.86	2.01	20.07	20.07	2.26	18.99	18.99	2.56	17.81	17.81	2.89
	57 (13.9)	22.65	22.65	1.61	21.86	21.86	1.79	20.99	20.99	2.01	20.03	20.03	2.26	18.96	18.96	2.56	17.78	17.78	2.89
800	72 (22.2)	27.58	14.71	1.61	26.81	14.45	1.80	25.55	14.02	2.03	24.19	13.56	2.28	22.74	13.07	2.58	21.07	12.52	2.92
	67 (19.4)	25.66	18.73	1.63	24.58	18.31	1.82	23.40	17.86	2.03	22.12	17.38	2.29	20.72	16.85	2.59	19.13	16.26	2.93
	63 (17.2)††	24.01	18.04	1.64	22.98	17.61	1.83	21.84	17.14	2.04	20.60	16.64	2.30	19.21	16.07	2.60	17.71	15.47	2.94
	62 (16.7)	23.68	23.55	1.64	22.79	22.79	1.83	21.87	21.87	2.04	20.85	20.85	2.29	19.72	19.72	2.59	18.47	18.47	2.93
	57 (13.9)	23.58	23.58	1.64	22.75	22.75	1.83	21.83	21.83	2.04	20.82	20.82	2.29	19.70	19.70	2.59	18.44	18.44	2.93
900	72 (22.2)	28.08	15.55	1.65	27.05	15.20	1.84	25.76	14.76	2.06	24.37	14.30	2.32	22.89	13.82	2.62	21.20	13.27	2.96
	67 (19.4)	25.92	19.92	1.66	24.84	19.52	1.85	23.64	19.06	2.07	22.34	18.57	2.33	20.92	18.04	2.62	19.32	17.43	2.96
	63 (17.2)††	24.31	19.16	1.68	23.25	18.73	1.86	22.09	18.26	2.08	20.83	17.75	2.33	19.42	17.17	2.63	17.90	16.53	2.97
	62 (16.7)	24.39	24.39	1.68	23.51	23.51	1.86	22.54	22.54	2.08	21.49	21.49	2.33	20.33	20.33	2.63	19.01	19.01	2.96
	57 (13.9)	24.35	24.35	1.68	23.48	23.48	1.86	22.51	22.51	2.08	21.46	21.46	2.33	20.30	20.30	2.63	18.98	18.98	2.96
24ACC430A0L30 Outdoor Section With CAP3721AL* Indoor Section**																			
875	72 (22.2)	35.32	18.09	1.96	33.79	17.54	2.16	32.16	16.97	2.41	30.40	16.37	2.69	28.49	15.71	3.03	26.37	14.99	3.42
	67 (19.4)	32.05	22.35	1.97	30.63	21.79	2.18	29.13	21.21	2.42	27.54	20.59	2.71	25.77	19.92	3.04	23.83	19.19	3.43
	63 (17.2)††	29.73	21.47	1.98	28.40	20.91	2.19	27.00	20.32	2.43	25.49	19.70	2.72	23.84	19.02	3.06	22.01	18.28	3.44
	62 (16.7)	29.19	26.49	1.98	27.91	25.91	2.19	26.59	26.50	2.43	25.35	25.35	2.72	24.02	24.02	3.05	22.54	22.54	3.44
	57 (13.9)	28.61	28.61	1.98	27.59	27.59	2.19	26.50	26.50	2.43	25.31	25.31	2.72	23.98	23.98	3.05	22.50	22.50	3.44
1000	72 (22.2)	35.92	19.11	2.00	34.32	18.56	2.21	32.63	17.98	2.45	30.81	17.36	2.74	28.82	16.70	3.08	26.64	15.98	3.46
	67 (19.4)	32.62	23.96	2.02	31.15	23.39	2.22	29.60	22.80	2.47	27.94	22.17	2.75	26.12	21.49	3.09	24.12	20.73	3.48
	63 (17.2)††	30.28	22.97	2.03	28.90	22.40	2.23	27.45	21.80	2.48	25.89	21.16	2.77	24.18	20.47	3.10	22.30	19.70	3.49
	62 (16.7)	29.93	29.93	2.03	28.86	28.70	2.23	27.64	27.64	2.48	26.36	26.36	2.76	24.94	24.94	3.10	23.36	23.36	3.48
	57 (13.9)	29.87	29.87	2.03	28.77	28.77	2.23	27.59	27.59	2.48	26.32	26.32	2.76	24.91	24.91	3.10	23.33	23.33	3.48
1125	72 (22.2)	36.34	20.10	2.05	34.70	19.54	2.25	32.96	18.96	2.50	31.08	18.34	2.79	29.03	17.66	3.12	26.80	16.93	3.51
	67 (19.4)	33.06	25.53	2.06	31.55	24.95	2.27	29.95	24.35	2.51	28.24	23.70	2.80	26.39	23.00	3.14	24.36	22.21	3.52
	63 (17.2)††	30.70	24.43	2.07	29.28	23.84	2.28	27.79	23.23	2.53	26.19	22.58	2.81	24.44	21.86	3.15	22.55	21.04	3.54
	62 (16.7)	30.97	30.97	2.07	29.80	29.80	2.28	28.55	28.55	2.52	27.20	27.20	2.81	25.70	25.70	3.14	24.04	24.04	3.53
	57 (13.9)	30.92	30.92	2.07	29.75	29.75	2.28	28.51	28.51	2.52	27.17	27.17	2.81	25.67	25.67	3.14	24.01	24.01	3.53

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DETAILED COOLING CAPACITIES# -ALUMINUM COIL MODELS (Continued)

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
CFM	EWB	Capacity MBtuh		Total System KW**	Capacity MBtuh		Total System KW**	Capacity MBtuh		Total System KW**	Capacity MBtuh		Total System KW**	Capacity MBtuh		Total System KW**	Capacity MBtuh		Total System KW**
		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡	
24ACC436A0L30 Outdoor Section With CAP3721AL* Indoor Section**																			
1075	72 (22.2)	41.11	21.09	2.36	39.28	20.45	2.61	37.28	19.77	2.87	35.16	19.05	3.17	32.95	18.30	3.55	30.61	17.53	4.02
	67 (19.4)	37.75	26.33	2.35	36.07	25.68	2.59	34.20	24.97	2.85	32.21	24.21	3.15	30.12	23.42	3.52	27.93	22.61	3.99
	63 (17.2)††	35.28	25.40	2.35	33.68	24.73	2.59	31.92	24.00	2.84	30.03	23.23	3.14	28.01	22.41	3.52	25.96	21.58	3.99
	62 (16.7)	34.73	31.40	2.35	33.20	30.68	2.59	31.57	31.57	2.84	30.03	30.03	3.14	28.39	28.39	3.51	26.68	26.68	3.99
	57 (13.9)	34.19	34.19	2.35	32.93	32.93	2.59	31.52	31.52	2.84	29.99	29.99	3.14	28.34	28.34	3.51	26.64	26.64	3.99
1200	72 (22.2)	41.54	22.03	2.41	39.66	21.40	2.66	37.62	20.71	2.92	35.44	19.98	3.22	33.18	19.23	3.60	30.80	18.45	4.07
	67 (19.4)	38.21	27.85	2.40	36.47	27.19	2.64	34.56	26.47	2.90	32.53	25.70	3.20	30.41	24.91	3.57	28.18	24.08	4.04
	63 (17.2)††	35.75	26.81	2.40	34.11	26.14	2.63	32.30	25.40	2.89	30.36	24.62	3.19	28.31	23.79	3.56	26.22	22.94	4.03
	62 (16.7)	35.51	33.03	2.40	34.03	34.03	2.63	32.54	32.54	2.89	30.92	30.92	3.19	29.21	29.21	3.56	27.41	27.41	4.04
	57 (13.9)	35.32	35.32	2.40	33.98	33.98	2.63	32.49	32.49	2.89	30.88	30.88	3.19	29.17	29.17	3.56	27.37	27.37	4.04
1350	72 (22.2)	41.91	23.13	2.47	39.99	22.49	2.72	37.89	21.79	2.98	35.67	21.06	3.28	33.35	20.30	3.66	30.94	19.52	4.13
	67 (19.4)	38.62	29.63	2.45	36.84	28.96	2.70	34.89	28.23	2.96	32.82	27.45	3.26	30.67	26.63	3.63	28.42	25.75	4.10
	63 (17.2)††	36.18	28.46	2.45	34.51	27.79	2.69	32.65	27.03	2.95	30.68	26.23	3.25	28.60	25.37	3.62	26.49	24.45	4.09
	62 (16.7)	36.49	36.49	2.45	35.08	35.08	2.69	33.50	33.50	2.95	31.80	31.80	3.25	30.02	30.02	3.62	28.12	28.12	4.10
	57 (13.9)	36.44	36.44	2.45	35.03	35.03	2.69	33.45	33.45	2.95	31.76	31.76	3.25	29.98	29.98	3.62	28.09	28.09	4.10
24ACC442A0L30 Outdoor Section With CAP4321AL* Indoor Section**																			
1200	72 (22.2)	49.34	25.98	2.82	47.26	25.22	3.10	45.13	24.44	3.43	42.71	23.58	3.78	40.21	22.69	4.19	37.54	21.75	4.64
	67 (19.4)	44.89	31.51	2.81	43.00	30.75	3.10	41.00	29.94	3.42	38.88	29.09	3.78	36.60	28.19	4.18	34.16	27.24	4.64
	63 (17.2)††	41.69	30.35	2.81	39.94	29.58	3.09	38.09	28.78	3.41	36.10	27.92	3.77	33.98	27.02	4.18	31.71	26.07	4.64
	62 (16.7)	40.99	36.93	2.81	39.30	36.14	3.09	37.51	35.30	3.41	35.64	35.34	3.77	33.84	33.84	4.18	32.01	32.01	4.64
	57 (13.9)	39.79	39.79	2.81	38.46	38.46	3.09	37.02	37.02	3.41	35.47	35.47	3.77	33.79	33.79	4.18	31.96	31.96	4.64
1400	72 (22.2)	50.58	27.74	2.89	48.39	26.96	3.18	46.07	26.14	3.50	43.61	25.28	3.86	41.00	24.37	4.27	38.22	23.42	4.72
	67 (19.4)	46.10	34.17	2.89	44.11	33.38	3.17	42.02	32.56	3.49	39.78	31.68	3.86	37.41	30.76	4.26	34.88	29.78	4.72
	63 (17.2)††	42.85	32.83	2.89	41.01	32.04	3.17	39.06	31.22	3.49	36.99	30.35	3.85	34.78	29.42	4.26	32.42	28.44	4.71
	62 (16.7)	42.37	40.37	2.89	40.67	40.55	3.17	39.06	39.06	3.49	37.37	37.37	3.85	35.54	35.54	4.26	33.56	33.56	4.71
	57 (13.9)	42.03	42.03	2.89	40.57	40.57	3.17	39.01	39.01	3.49	37.32	37.32	3.85	35.49	35.49	4.26	33.52	33.52	4.71
1575	72 (22.2)	51.40	29.21	2.96	49.14	28.42	3.24	46.74	27.59	3.57	44.21	26.71	3.93	41.52	25.80	4.33	38.67	24.84	4.79
	67 (19.4)	46.92	36.41	2.96	44.87	35.61	3.24	42.69	34.76	3.56	40.40	33.87	3.92	37.96	32.92	4.33	35.38	31.91	4.78
	63 (17.2)††	43.65	34.92	2.96	41.74	34.12	3.24	39.73	33.27	3.56	37.61	32.38	3.92	35.34	31.42	4.32	32.94	30.39	4.78
	62 (16.7)	43.70	43.70	2.96	42.14	42.14	3.24	40.47	40.47	3.56	38.67	38.67	3.92	36.74	36.74	4.33	34.64	34.64	4.78
	57 (13.9)	43.64	43.64	2.96	42.08	42.08	3.24	40.41	40.41	3.56	38.63	38.63	3.92	36.70	36.70	4.33	34.60	34.60	4.78
24ACC448A0L30 Outdoor Section With CAP6124AL* Indoor Section**																			
1400	72 (22.2)	53.43	27.22	3.17	51.09	26.41	3.52	48.63	25.57	3.87	46.01	24.68	4.26	43.19	23.74	4.72	40.13	22.73	5.26
	67 (19.4)	49.05	33.96	3.17	46.86	33.12	3.51	44.55	32.24	3.85	42.11	31.31	4.24	39.47	30.32	4.69	36.62	29.26	5.24
	63 (17.2)††	45.80	32.74	3.17	43.72	31.87	3.49	41.54	30.98	3.83	39.23	30.03	4.22	36.74	29.03	4.67	34.04	27.94	5.23
	62 (16.7)	45.16	40.47	3.17	43.17	39.54	3.49	41.11	41.11	3.83	39.23	39.23	4.22	37.18	37.18	4.68	34.95	34.95	5.23
	57 (13.9)	44.45	44.45	3.17	42.79	42.79	3.49	41.05	41.05	3.83	39.17	39.17	4.22	37.13	37.13	4.68	34.90	34.90	5.23
1550	72 (22.2)	53.95	28.34	3.23	51.56	27.53	3.58	49.04	26.67	3.93	46.36	25.79	4.32	43.48	24.84	4.78	40.37	23.82	5.32
	67 (19.4)	49.61	35.76	3.23	47.36	34.91	3.57	45.00	34.02	3.91	42.49	33.08	4.30	39.81	32.08	4.75	36.93	31.00	5.30
	63 (17.2)††	46.37	34.42	3.23	44.24	33.54	3.56	42.01	32.63	3.90	39.64	31.68	4.28	37.09	30.65	4.74	34.36	29.54	5.29
	62 (16.7)	45.98	45.68	3.23	44.13	44.13	3.56	42.29	42.29	3.90	40.32	40.32	4.28	38.17	38.17	4.74	35.83	35.83	5.29
	57 (13.9)	45.81	45.81	3.23	44.07	44.07	3.56	42.23	42.23	3.90	40.26	40.26	4.28	38.12	38.12	4.74	35.79	35.79	5.29
1800	72 (22.2)	54.55	30.12	3.32	52.09	29.31	3.68	49.49	28.45	4.04	46.74	27.56	4.43	43.78	26.60	4.88	40.59	25.57	5.42
	67 (19.4)	50.28	38.66	3.33	47.97	37.79	3.67	45.55	36.88	4.02	43.00	35.92	4.40	40.26	34.87	4.86	37.35	33.71	5.40
	63 (17.2)††	47.08	37.11	3.33	44.88	36.22	3.66	42.58	35.29	4.00	40.16	34.30	4.38	37.57	33.22	4.84	34.82	31.98	5.39
	62 (16.7)	47.71	47.71	3.33	45.83	45.83	3.66	43.86	43.86	4.01	41.76	41.76	4.39	39.48	39.48	4.85	36.99	36.99	5.40
	57 (13.9)	47.63	47.63	3.33	45.77	45.77	3.66	43.81	43.81	4.01	41.71	41.71	4.39	39.43	39.43	4.85	36.95	36.95	5.40

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DETAILED COOLING CAPACITIES# -ALUMINUM COIL MODELS (Continued)

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
CFM	EWB	Capacity MBtuh		Total System KW**	Capacity MBtuh		Total System KW**	Capacity MBtuh		Total System KW**	Capacity MBtuh		Total System KW**	Capacity MBtuh		Total System KW**	Capacity MBtuh		Total System KW**
		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡	
24ACC460A0L30 Outdoor Section With CAP**6024AL* Indoor Section																			
1750	72 (22.2)	67.42	35.02	4.04	64.52	33.96	4.45	61.45	32.85	4.91	58.17	31.68	5.42	54.67	30.44	6.00	50.71	29.06	6.64
	67 (19.4)	61.43	43.22	4.02	58.77	42.14	4.42	56.00	41.04	4.87	53.01	39.86	5.38	49.80	38.58	5.96	46.36	37.25	6.61
	63 (17.2)††	57.05	41.56	3.99	54.64	40.52	4.39	52.04	39.39	4.84	49.25	38.21	5.35	46.25	36.94	5.93	43.01	35.58	6.58
	62 (16.7)	56.38	51.25	3.99	54.08	50.14	4.39	51.64	48.91	4.84	49.06	49.06	5.35	46.64	46.64	5.94	43.94	43.94	6.59
	57 (13.9)	55.28	55.28	3.99	53.36	53.36	4.39	51.28	51.28	4.84	49.03	49.03	5.35	46.57	46.57	5.94	43.89	43.89	6.59
2000	72 (22.2)	68.42	36.73	4.15	65.43	35.65	4.55	62.24	34.52	5.01	58.85	33.33	5.53	55.23	32.08	6.11	51.32	30.73	6.75
	67 (19.4)	62.43	45.99	4.12	59.67	44.90	4.52	56.79	43.76	4.98	53.69	42.55	5.49	50.40	41.26	6.07	46.86	39.87	6.72
	63 (17.2)††	58.03	44.14	4.10	55.48	43.05	4.50	52.80	41.92	4.95	49.93	40.70	5.46	46.84	39.40	6.04	43.52	37.98	6.69
	62 (16.7)	57.72	54.75	4.10	55.79	52.44	4.50	53.15	53.15	4.95	50.75	50.75	5.47	48.13	48.13	6.05	45.28	45.28	6.70
	57 (13.9)	57.35	57.35	4.09	55.28	55.28	4.50	53.08	53.08	4.95	50.69	50.69	5.47	48.08	48.08	6.05	45.23	45.23	6.70
2250	72 (22.2)	69.17	38.34	4.25	66.07	37.25	4.66	62.79	36.10	5.11	59.30	34.90	5.63	55.56	33.63	6.21	51.60	32.27	6.86
	67 (19.4)	63.16	48.62	4.22	60.34	47.50	4.62	57.37	46.34	5.08	54.21	45.10	5.59	50.84	43.76	6.17	47.24	42.29	6.82
	63 (17.2)††	58.76	46.58	4.20	56.13	45.46	4.60	53.37	44.29	5.05	50.44	43.04	5.56	47.27	41.67	6.14	43.92	40.19	6.79
	62 (16.7)	59.46	56.55	4.21	56.93	56.93	4.61	54.61	54.61	5.06	52.08	52.08	5.58	49.33	49.33	6.16	46.33	46.33	6.81
	57 (13.9)	59.06	59.06	4.20	56.87	56.87	4.60	54.55	54.55	5.06	52.02	52.02	5.58	49.28	49.28	6.16	46.29	46.29	6.81

† Total and sensible capacities are net capacities. Blower motor heat has been subtracted.

‡ Sensible capacities shown are based on 80°F (27°C) entering air at the indoor coil. For sensible capacities at other than 80°F (27°C), deduct 835 Btuh (245 kW) per 1000 CFM (480 L/S) of indoor coil air for each degree below 80°F (27°C), or add 835 Btuh (245 kW) per 1000 CFM (480 L/S) of indoor coil air per degree above 80°F (27°C).

Detailed cooling capacities are based on indoor and outdoor unit at the same elevation per AHRI standard 210/240-2008. If additional tubing length and/or indoor unit is located above outdoor unit, a slight variation in capacity may occur.

** System kw is total of indoor and outdoor unit kilowatts.

†† At TVA rating indoor condition (75°F edb/63°F ewb). All other indoor air temperatures are at 80°F edb.

NOTE: When the required data falls between the published data, interpolation may be performed. Extrapolation is not an acceptable practice.

EWB — Entering Wet Bulb

Manufacturer reserves the right to change, at any time, specifications and designs without notice and without obligations.

CONDENSER ONLY RATINGS (Copper Coil Models)

SST °F (°C)		CONDENSER ENTERING AIR TEMPERATURES °F (°C)							
		55 (12.78)	65 (18.33)	75 (23.89)	85 (29.44)	95 (35.0)	105 (40.56)	115 (46.11)	125 (51.67)
24ACC418A0030									
30 (-1.11)	TCG	16.00	14.90	13.90	12.90	12.00	10.90	9.80	8.60
	SDT	73.60	83.20	92.80	102.60	112.40	122.40	132.30	142.40
	KW	0.77	0.88	0.99	1.12	1.27	1.44	1.65	1.88
35 (1.67)	TCG	17.60	16.50	15.40	14.40	13.40	12.20	11.00	9.80
	SDT	75.00	84.60	94.30	104.00	113.80	123.50	133.50	143.50
	KW	0.77	0.88	1.00	1.13	1.28	1.46	1.66	1.90
40 (4.44)	TCG	19.40	18.20	17.10	16.00	14.90	13.70	12.40	11.00
	SDT	76.50	86.10	95.80	105.40	115.00	124.80	134.60	144.60
	KW	0.77	0.88	1.00	1.14	1.29	1.47	1.67	1.91
45 (7.22)	TCG	21.20	20.00	18.90	17.70	16.50	15.20	13.80	12.30
	SDT	78.00	87.50	97.10	106.70	116.40	126.10	135.90	145.70
	KW	0.77	0.88	1.01	1.14	1.30	1.48	1.69	1.93
50 (10.0)	TCG	23.20	22.00	20.80	19.50	18.30	16.90	15.40	13.80
	SDT	79.30	88.90	98.50	108.10	117.70	127.40	137.10	146.90
	KW	0.76	0.88	1.01	1.15	1.30	1.49	1.70	1.94
55 (12.78)	TCG	25.30	24.00	22.80	21.50	20.10	18.70	17.10	15.40
	SDT	80.80	90.40	100.00	109.50	119.10	128.80	138.40	148.00
	KW	0.75	0.87	1.00	1.15	1.31	1.50	1.71	1.95
24ACC424A0030									
30 (-1.11)	TCG	21.30	20.10	18.90	17.70	16.60	15.40	14.20	13.00
	SDT	69.90	79.40	88.80	98.30	107.80	117.30	126.70	136.10
	KW	1.05	1.21	1.37	1.54	1.74	1.96	2.22	2.52
35 (1.67)	TCG	23.40	22.10	20.80	19.60	18.30	17.10	15.80	14.40
	SDT	71.10	80.60	90.00	99.50	108.90	118.20	127.50	136.90
	KW	1.06	1.21	1.37	1.54	1.74	1.96	2.22	2.52
40 (4.44)	TCG	25.60	24.20	22.90	21.50	20.20	18.80	17.40	15.90
	SDT	72.40	81.80	91.20	100.60	109.80	119.10	128.40	137.70
	KW	1.06	1.21	1.37	1.55	1.74	1.97	2.22	2.53
45 (7.22)	TCG	28.00	26.50	25.10	23.60	22.10	20.60	19.00	17.40
	SDT	73.80	83.20	92.40	101.70	110.90	120.20	129.40	138.60
	KW	1.07	1.22	1.37	1.55	1.74	1.97	2.23	2.53
50 (10.0)	TCG	30.50	28.90	27.30	25.80	24.10	22.50	20.80	19.00
	SDT	75.20	84.40	93.70	102.90	112.10	121.20	130.40	139.60
	KW	1.07	1.22	1.37	1.55	1.74	1.97	2.23	2.53
55 (12.78)	TCG	33.20	31.50	29.80	28.00	26.20	24.40	22.60	20.70
	SDT	76.70	85.80	95.00	104.20	113.30	122.40	131.50	140.60
	KW	1.07	1.22	1.38	1.55	1.75	1.97	2.23	2.53
24ACC430A0030									
30 (-1.11)	TCG	24.90	23.60	22.30	21.00	19.60	18.30	16.80	15.20
	SDT	68.80	78.20	87.70	97.20	106.60	116.00	125.40	134.80
	KW	1.22	1.39	1.56	1.74	1.95	2.19	2.47	2.80
35 (1.67)	TCG	27.40	26.00	24.60	23.20	21.70	20.20	18.60	16.90
	SDT	70.00	79.40	88.80	98.10	107.50	116.90	126.20	135.50
	KW	1.23	1.39	1.56	1.75	1.96	2.20	2.48	2.81
40 (4.44)	TCG	30.10	28.60	27.00	25.50	23.90	22.20	20.50	18.70
	SDT	71.30	80.60	89.90	99.20	108.50	117.80	127.10	136.40
	KW	1.24	1.40	1.57	1.76	1.97	2.21	2.49	2.82
45 (7.22)	TCG	33.10	31.40	29.70	28.00	26.30	24.50	22.60	20.60
	SDT	72.70	81.90	91.10	100.40	109.60	118.90	128.10	137.30
	KW	1.24	1.40	1.57	1.76	1.97	2.22	2.50	2.83
50 (10.0)	TCG	36.20	34.40	32.50	30.70	28.80	26.80	24.80	22.60
	SDT	74.20	83.20	92.40	101.60	110.80	120.00	129.10	138.20
	KW	1.25	1.41	1.58	1.77	1.98	2.22	2.51	2.84
55 (12.78)	TCG	39.60	37.60	35.60	33.50	31.50	29.30	27.10	24.80
	SDT	75.70	84.70	93.80	102.90	112.00	121.10	130.20	139.20
	KW	1.25	1.41	1.58	1.77	1.98	2.23	2.52	2.85

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CONDENSER ONLY RATINGS (Copper Coil Models) (Continued)

SST °F (°C)		CONDENSER ENTERING AIR TEMPERATURES °F (°C)							
		55 (12.78)	65 (18.33)	75 (23.89)	85 (29.44)	95 (35.0)	105 (40.56)	115 (46.11)	125 (51.67)
24ACC436A0030									
30 (-1.11)	TCG	27.40	29.30	29.20	27.80	25.80	23.60	21.30	19.20
	SDT	66.90	77.90	88.10	97.70	107.00	116.20	125.40	134.80
	KW	0.98	1.26	1.47	1.64	1.81	2.01	2.25	2.57
35 (1.67)	TCG	31.30	32.80	32.40	30.80	28.70	26.30	23.90	21.60
	SDT	68.30	79.20	89.30	98.70	107.90	117.10	126.20	135.50
	KW	0.97	1.25	1.45	1.63	1.81	2.01	2.25	2.56
40 (4.44)	TCG	35.20	36.40	35.70	33.90	31.60	29.00	26.40	24.00
	SDT	69.80	80.60	90.30	99.70	108.90	118.00	127.10	136.40
	KW	0.96	1.24	1.44	1.62	1.80	2.00	2.25	2.56
45 (7.22)	TCG	39.20	40.00	39.00	37.00	34.40	31.70	28.90	26.40
	SDT	71.30	81.60	91.30	100.70	109.80	118.80	127.90	137.20
	KW	0.95	1.22	1.43	1.61	1.80	2.00	2.25	2.57
50 (10.0)	TCG	43.10	43.50	42.20	40.00	37.20	34.30	31.40	28.70
	SDT	72.50	82.80	92.40	101.60	110.70	119.70	128.80	137.90
	KW	0.94	1.21	1.42	1.61	1.80	2.01	2.26	2.58
55 (12.78)	TCG	46.80	46.80	45.30	42.80	39.90	36.80	33.70	30.80
	SDT	73.70	83.80	93.40	102.60	111.60	120.60	129.60	138.70
	KW	0.93	1.20	1.42	1.61	1.81	2.02	2.27	2.59
24ACC442A0030									
30 (-1.11)	TCG	33.60	32.00	30.40	28.70	26.90	25.00	23.10	21.00
	SDT	67.80	77.30	86.90	96.50	106.00	115.50	125.00	134.40
	KW	1.73	1.92	2.14	2.39	2.66	2.97	3.31	3.70
35 (1.67)	TCG	37.10	35.30	33.50	31.60	29.70	27.60	25.50	23.30
	SDT	69.00	78.50	88.00	97.50	107.00	116.40	125.70	135.10
	KW	1.73	1.93	2.15	2.40	2.67	2.98	3.33	3.71
40 (4.44)	TCG	40.80	38.90	36.90	34.80	32.70	30.50	28.10	25.70
	SDT	70.20	79.70	89.10	98.60	108.00	117.30	126.50	135.80
	KW	1.74	1.94	2.16	2.41	2.68	2.99	3.34	3.73
45 (7.22)	TCG	44.90	42.70	40.50	38.20	35.90	33.50	31.00	28.30
	SDT	71.60	80.90	90.30	99.60	108.90	118.20	127.40	136.60
	KW	1.74	1.94	2.17	2.41	2.69	3.00	3.35	3.74
50 (10.0)	TCG	49.30	46.90	44.40	42.00	39.40	36.70	34.00	31.10
	SDT	73.00	82.30	91.50	100.70	110.00	119.20	128.30	137.50
	KW	1.75	1.95	2.17	2.42	2.70	3.01	3.36	3.76
55 (12.78)	TCG	54.00	51.40	48.70	45.90	43.10	40.20	37.20	34.10
	SDT	74.50	83.60	92.80	101.90	111.10	120.20	129.30	138.40
	KW	1.75	1.95	2.17	2.42	2.71	3.02	3.38	3.77
24ACC448A0030									
30 (-1.11)	TCG	40.80	38.00	35.60	33.50	31.40	29.10	26.60	23.70
	SDT	69.00	78.10	87.30	96.60	106.00	115.30	124.50	133.70
	KW	2.01	2.38	2.69	2.97	3.28	3.65	4.13	4.75
35 (1.67)	TCG	44.70	41.80	39.30	37.10	34.80	32.30	29.50	26.40
	SDT	70.30	79.30	88.50	97.70	107.00	116.30	125.40	134.60
	KW	1.99	2.37	2.69	2.99	3.30	3.67	4.14	4.75
40 (4.44)	TCG	48.90	45.90	43.30	40.90	38.40	35.70	32.60	29.20
	SDT	71.70	80.60	89.80	99.00	108.20	117.30	126.50	135.50
	KW	1.97	2.36	2.69	3.00	3.32	3.69	4.16	4.76
45 (7.22)	TCG	53.30	50.30	47.60	45.00	42.20	39.30	35.90	32.20
	SDT	73.10	82.10	91.10	100.30	109.40	118.50	127.50	136.40
	KW	1.94	2.35	2.69	3.01	3.34	3.71	4.18	4.76
50 (10.0)	TCG	58.10	55.00	52.10	49.30	46.30	43.10	39.40	35.30
	SDT	74.70	83.60	92.60	101.70	110.70	119.70	128.60	137.40
	KW	1.90	2.32	2.68	3.01	3.35	3.73	4.19	4.77
55 (12.78)	TCG	63.30	60.00	57.00	53.90	50.60	47.00	43.00	38.60
	SDT	76.40	85.20	94.20	103.20	112.20	121.00	129.80	138.40
	KW	1.86	2.30	2.67	3.01	3.36	3.74	4.20	4.77

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CONDENSER ONLY RATINGS (Copper Coil Models) (Continued)

SST °F (°C)		CONDENSER ENTERING AIR TEMPERATURES °F (°C)							
		55 (12.78)	65 (18.33)	75 (23.89)	85 (29.44)	95 (35.0)	105 (40.56)	115 (46.11)	125 (51.67)
24ACC460A0030									
30 (-1.11)	TCG	53.80	50.20	47.00	44.00	41.20	38.30	35.20	31.80
	SDT	71.80	80.60	89.70	98.90	108.10	117.40	126.50	135.60
	KW	3.08	3.18	3.40	3.73	4.14	4.62	5.14	5.69
35 (1.67)	TCG	59.10	55.20	51.70	48.60	45.50	42.30	38.80	35.10
	SDT	73.20	82.00	91.00	100.10	109.30	118.50	127.60	136.60
	KW	3.06	3.17	3.40	3.73	4.15	4.63	5.16	5.71
40 (4.44)	TCG	64.70	60.60	56.90	53.50	50.00	46.50	42.80	38.70
	SDT	74.70	83.40	92.40	101.40	110.60	119.70	128.70	137.60
	KW	3.03	3.16	3.39	3.73	4.16	4.65	5.18	5.74
45 (7.22)	TCG	70.70	66.40	62.40	58.70	54.90	51.10	46.90	42.50
	SDT	76.30	85.00	93.90	102.90	112.00	121.00	129.90	138.70
	KW	3.01	3.14	3.39	3.74	4.17	4.67	5.21	5.77
50 (10.0)	TCG	77.20	72.60	68.40	64.30	60.20	55.90	51.40	46.60
	SDT	78.20	86.80	95.60	104.50	113.50	122.40	131.20	139.80
	KW	2.97	3.12	3.38	3.75	4.20	4.70	5.25	5.81
55 (12.78)	TCG	84.20	79.30	74.70	70.30	65.80	61.10	56.10	50.80
	SDT	80.20	88.80	97.50	106.30	115.10	123.90	132.50	141.00
	KW	2.93	3.10	3.39	3.76	4.22	4.74	5.29	5.86

KW - Outdoor Unit Kilowatts Only.
SDT -Saturated Temperature Leaving Compressor (°F)
SST -Saturated Temperature Entering Compressor (°F/°C)
TCG -Gross Cooling Capacity (1000 Btuh)

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CONDENSER ONLY RATINGS (Aluminum Coil Models)

SST deg °F (°C)		CONDENSER ENTERING AIR TEMPERATURES °F (°C)							
		55 (12.8)	65 (18.3)	75 (23.9)	85 (29.4)	95 (35)	105 (40.6)	115 (46.1)	125 (51.7)
24ACC418A0L30									
30 (-1.1)	TCG	15.10	14.10	13.10	12.20	11.30	10.40	9.50	8.40
	SDT	70.40	79.80	89.20	98.70	108.30	117.80	127.30	136.80
	KW	0.80	0.91	1.02	1.15	1.30	1.46	1.65	1.87
35 (1.7)	TCG	16.60	15.60	14.60	13.60	12.70	11.70	10.60	9.50
	SDT	71.50	80.80	90.30	99.70	109.20	118.70	128.20	137.70
	KW	0.80	0.91	1.02	1.15	1.30	1.47	1.66	1.88
40 (4.4)	TCG	18.30	17.20	16.10	15.10	14.10	13.00	11.90	10.70
	SDT	72.50	81.90	91.30	100.80	110.20	119.60	129.10	138.50
	KW	0.79	0.90	1.02	1.15	1.30	1.47	1.66	1.89
45 (7.2)	TCG	20.00	18.80	17.80	16.70	15.60	14.50	13.30	12.00
	SDT	73.70	83.00	92.40	101.90	111.20	120.70	130.10	139.40
	KW	0.78	0.89	1.02	1.15	1.30	1.47	1.67	1.89
50 (10)	TCG	21.80	20.70	19.50	18.40	17.30	16.10	14.80	13.40
	SDT	74.90	84.20	93.50	103.00	112.40	121.70	131.10	140.30
	KW	0.77	0.89	1.01	1.15	1.30	1.48	1.67	1.90
55 (12.8)	TCG	23.80	22.60	21.40	20.20	19.00	17.70	16.40	14.90
	SDT	76.10	85.40	94.80	104.20	113.60	122.90	132.10	141.20
	KW	0.76	0.88	1.00	1.15	1.30	1.48	1.68	1.90
24ACC424A0L30									
30 (-1.1)	TCG	20.20	19.20	18.00	16.90	15.70	14.40	13.10	11.70
	SDT	70.80	80.30	89.70	99.10	108.60	117.90	127.20	136.50
	KW	1.10	1.23	1.37	1.55	1.75	1.98	2.25	2.55
35 (1.7)	TCG	22.40	21.20	20.00	18.70	17.40	16.10	14.60	13.20
	SDT	72.00	81.40	90.80	100.20	109.50	118.80	128.10	137.30
	KW	1.09	1.22	1.37	1.55	1.75	1.98	2.25	2.55
40 (4.4)	TCG	24.70	23.40	22.00	20.70	19.20	17.80	16.30	14.70
	SDT	73.20	82.50	91.90	101.20	110.50	119.70	128.90	138.10
	KW	1.09	1.22	1.37	1.54	1.75	1.98	2.25	2.56
45 (7.2)	TCG	27.10	25.60	24.20	22.70	21.20	19.60	17.90	16.30
	SDT	74.40	83.80	93.00	102.30	111.50	120.70	129.90	138.90
	KW	1.08	1.21	1.36	1.54	1.75	1.98	2.25	2.56
50 (10)	TCG	29.60	28.00	26.40	24.80	23.20	21.50	19.70	17.90
	SDT	75.70	85.00	94.30	103.50	112.60	121.70	130.80	139.90
	KW	1.06	1.20	1.36	1.54	1.74	1.98	2.26	2.56
55 (12.8)	TCG	32.30	30.60	28.80	27.00	25.20	23.40	21.50	19.60
	SDT	77.10	86.40	95.50	104.70	113.70	122.80	131.90	140.80
	KW	1.04	1.19	1.35	1.53	1.74	1.98	2.26	2.57
24ACC430A0L30									
30 (-1.1)	TCG	29.20	27.60	26.10	24.50	22.80	21.00	18.90	16.60
	SDT	77.50	87.40	97.40	107.60	118.00	128.50	139.30	150.30
	KW	1.23	1.39	1.57	1.79	2.05	2.36	2.73	3.17
35 (1.7)	TCG	32.20	30.50	28.80	27.10	25.30	23.30	21.10	18.70
	SDT	79.10	89.00	99.00	109.10	119.50	130.00	140.70	151.60
	KW	1.24	1.40	1.58	1.80	2.07	2.38	2.76	3.21
40 (4.4)	TCG	35.40	33.60	31.80	29.90	28.00	25.80	23.40	20.80
	SDT	80.80	90.60	100.60	110.80	121.00	131.50	142.10	152.70
	KW	1.25	1.41	1.59	1.82	2.08	2.41	2.79	3.23
45 (7.2)	TCG	39.00	37.00	35.00	33.00	30.80	28.50	26.00	23.20
	SDT	82.60	92.40	102.40	112.40	122.70	133.00	143.40	153.80
	KW	1.26	1.41	1.60	1.83	2.10	2.43	2.81	3.25
50 (10)	TCG	42.70	40.60	38.50	36.30	33.90	31.40	28.70	23.20
	SDT	84.60	94.30	104.20	114.20	124.30	134.50	144.70	153.80
	KW	1.26	1.42	1.61	1.84	2.12	2.44	2.83	3.25
55 (12.8)	TCG	46.80	44.50	42.20	39.80	37.30	34.50	31.60	23.20
	SDT	86.60	96.30	106.10	116.00	125.90	135.90	145.90	153.80
	KW	1.27	1.43	1.62	1.85	2.13	2.46	2.84	3.25

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CONDENSER ONLY RATINGS (Aluminum Coil Models) (Continued)

SST deg °F (°C)		CONDENSER ENTERING AIR TEMPERATURES °F (°C)							
		55 (12.8)	65 (18.3)	75 (23.9)	85 (29.4)	95 (35)	105 (40.6)	115 (46.1)	125 (51.7)
24ACC436A0L30									
30 (-1.1)	TCG	30.20	29.00	27.60	25.80	24.00	22.00	20.10	18.10
	SDT	71.60	81.10	90.50	99.80	109.00	118.20	127.40	136.60
	KW	1.49	1.77	2.00	2.22	2.44	2.70	3.03	3.45
35 (1.7)	TCG	33.40	32.10	30.40	28.60	26.60	24.50	22.30	20.20
	SDT	72.90	82.30	91.70	100.90	110.00	119.10	128.30	137.50
	KW	1.48	1.76	1.99	2.21	2.44	2.70	3.03	3.46
40 (4.4)	TCG	36.80	35.30	33.50	31.40	29.30	27.00	24.70	22.40
	SDT	74.20	83.60	92.90	102.00	111.10	120.20	129.30	138.40
	KW	1.47	1.75	1.98	2.20	2.44	2.71	3.04	3.47
45 (7.2)	TCG	40.40	38.70	36.70	34.40	32.10	29.60	27.10	24.70
	SDT	75.60	84.90	94.20	103.20	112.30	121.30	130.30	139.30
	KW	1.47	1.74	1.98	2.21	2.44	2.72	3.06	3.48
50 (10)	TCG	44.20	42.20	40.00	37.50	34.90	32.30	29.70	27.00
	SDT	77.10	86.40	95.50	104.50	113.50	122.40	131.30	140.20
	KW	1.47	1.74	1.98	2.21	2.45	2.73	3.07	3.50
55 (12.8)	TCG	48.10	45.90	43.40	40.70	37.90	35.10	32.20	29.40
	SDT	78.80	88.00	97.00	105.90	114.80	123.50	132.30	141.10
	KW	1.48	1.75	2.00	2.23	2.47	2.76	3.10	3.52
24ACC442A0L30									
30 (-1.1)	TCG	36.40	34.70	32.90	31.00	29.00	27.00	24.80	22.50
	SDT	74.90	84.50	94.20	103.90	113.60	123.50	133.40	143.40
	KW	1.84	2.05	2.29	2.57	2.87	3.23	3.63	4.09
35 (1.7)	TCG	40.10	38.20	36.20	34.20	32.00	29.80	27.50	25.00
	SDT	76.40	85.90	95.50	105.10	114.80	124.60	134.50	144.50
	KW	1.85	2.07	2.31	2.59	2.90	3.26	3.67	4.14
40 (4.4)	TCG	44.20	42.10	39.90	37.60	35.30	32.90	30.30	27.70
	SDT	77.90	87.40	96.90	106.50	116.10	125.90	135.70	145.50
	KW	1.87	2.08	2.33	2.61	2.92	3.29	3.70	4.17
45 (7.2)	TCG	48.60	46.20	43.80	41.40	38.80	36.20	33.40	30.60
	SDT	79.60	89.00	98.40	107.90	117.50	127.20	136.90	146.60
	KW	1.88	2.10	2.35	2.63	2.95	3.32	3.74	4.21
50 (10)	TCG	53.30	50.80	48.10	45.40	42.60	39.80	36.80	33.70
	SDT	81.30	90.60	100.00	109.40	119.00	128.50	138.20	147.70
	KW	1.89	2.12	2.37	2.65	2.98	3.35	3.77	4.24
55 (12.8)	TCG	58.50	55.60	52.70	49.80	46.80	43.70	40.40	37.10
	SDT	83.10	92.40	101.70	111.10	120.50	130.00	139.40	148.70
	KW	1.91	2.13	2.39	2.68	3.01	3.38	3.80	4.27
24ACC448A0L30									
30 (-1.1)	TCG	40.40	38.10	35.90	33.60	31.20	28.80	26.20	23.40
	SDT	69.70	78.90	88.10	97.30	106.50	115.80	124.90	134.10
	KW	2.05	2.37	2.65	2.93	3.24	3.62	4.09	4.70
35 (1.7)	TCG	44.50	42.10	39.60	37.20	34.70	32.00	29.20	26.30
	SDT	71.10	80.20	89.30	98.50	107.70	116.80	126.00	135.10
	KW	2.03	2.36	2.66	2.95	3.27	3.64	4.11	4.70
40 (4.4)	TCG	48.90	46.20	43.60	41.00	38.20	35.40	32.40	29.30
	SDT	72.60	81.60	90.70	99.80	108.90	118.00	127.00	136.10
	KW	2.00	2.35	2.67	2.97	3.29	3.67	4.12	4.70
45 (7.2)	TCG	53.40	50.50	47.70	44.90	42.00	38.90	35.70	32.30
	SDT	74.10	83.00	92.10	101.10	110.10	119.10	128.10	137.00
	KW	1.97	2.34	2.67	2.99	3.31	3.69	4.15	4.71
50 (10)	TCG	58.10	55.00	52.00	49.00	45.80	42.60	39.10	35.50
	SDT	75.70	84.60	93.50	102.50	111.40	120.30	129.20	138.00
	KW	1.94	2.33	2.68	3.00	3.34	3.72	4.17	4.72
55 (12.8)	TCG	62.90	59.60	56.40	53.10	49.80	46.30	42.60	38.70
	SDT	77.40	86.20	95.00	103.90	112.70	121.50	130.30	139.00
	KW	1.91	2.32	2.68	3.02	3.37	3.75	4.20	4.73

Manufacturer reserves the right to change, at any time, specifications and designs without notice and without obligations.

CONDENSER ONLY RATINGS (Aluminum Coil Models) (Continued)

SST deg °F (°C)		CONDENSER ENTERING AIR TEMPERATURES °F (°C)							
		55 (12.8)	65 (18.3)	75 (23.9)	85 (29.4)	95 (35)	105 (40.6)	115 (46.1)	125 (51.7)
24ACC460A0L30									
30 (-1.1)	TCG	55.00	52.30	49.50	46.70	43.70	40.60	37.30	33.70
	SDT	71.00	80.30	89.60	99.00	108.20	117.50	126.70	135.70
	KW	2.63	2.95	3.30	3.69	4.13	4.63	5.19	5.82
35 (1.7)	TCG	60.60	57.60	54.60	51.50	48.30	44.90	41.30	37.50
	SDT	72.40	81.70	90.90	100.20	109.40	118.60	127.70	136.70
	KW	2.66	2.98	3.33	3.72	4.16	4.66	5.23	5.87
40 (4.4)	TCG	66.60	63.30	60.00	56.60	53.10	49.40	45.50	41.40
	SDT	74.00	83.20	92.40	101.50	110.70	119.80	128.80	137.80
	KW	2.69	3.00	3.35	3.75	4.19	4.70	5.27	5.91
45 (7.2)	TCG	73.00	69.40	65.80	62.00	58.20	54.20	50.00	45.50
	SDT	75.70	84.80	93.90	103.00	112.00	121.00	130.00	138.90
	KW	2.72	3.03	3.38	3.78	4.23	4.74	5.31	5.96
50 (10)	TCG	79.90	75.90	71.90	67.80	63.60	59.20	54.60	49.80
	SDT	77.50	86.50	95.50	104.50	113.50	122.40	131.20	140.00
	KW	2.75	3.06	3.42	3.82	4.27	4.78	5.36	6.00
55 (12.8)	TCG	87.10	82.70	78.30	73.80	69.20	64.50	59.50	54.30
	SDT	79.50	88.30	97.20	106.10	115.00	123.80	132.50	141.10
	KW	2.78	3.09	3.45	3.85	4.31	4.82	5.40	6.04

KW - Outdoor Unit Kilowatts Only.
SDT -Saturated Temperature Leaving Compressor (°F)
SST -Saturated Temperature Entering Compressor (°F/°C)
TCG -Gross Cooling Capacity (1000 Btuh)

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GUIDE SPECIFICATIONS
GENERAL

Air-cooled, split-system air conditioner
24ACC4
1-1/2 to 5 nominal tons

System Description

Outdoor-mounted, air-cooled, split-system air conditioner unit suitable for ground or rooftop installation. Unit consists of a hermetic compressor, an air-cooled coil, propeller-type condenser fan, and a control box. Unit will discharge supply air upward as shown on contract drawings. Unit will be used in a refrigeration circuit to match up to a packaged fan coil or coil unit.

Quality Assurance

- Unit will be rated in accordance with the latest edition of AHRI Standard 210.
- Unit will be certified for capacity and efficiency, and listed in the latest AHRI directory.
- Unit construction will comply with latest edition of ANSI/ ASHRAE and with NEC.
- Unit will be constructed in accordance with UL standards and will carry the UL label of approval. Unit will have c-UL-us approval.
- Unit cabinet will be capable of withstanding Federal Test Method Standard No. 141 (Method 6061) 500-hr salt spray test.
- Air-cooled condenser coils will be leak tested at 150 psig and pressure tested at 450 psig.
- Unit constructed in ISO9001 approved facility.

Delivery, Storage, and Handling

- Unit will be shipped as single package only and is stored and handled per unit manufacturer's recommendations.

Warranty (for inclusion by specifying engineer)

- U.S. and Canada only.

PRODUCTS

Equipment

Factory assembled, single piece, air-cooled air conditioner unit. Contained within the unit enclosure is all factory wiring, piping, controls, compressor, refrigerant charge Puron® (), and special features required prior to field start-up.

Unit Cabinet

- Unit cabinet will be constructed of galvanized steel, bonderized, and coated with a powder coat paint.

Fans

- Condenser fan will be direct-drive propeller type, discharging air upward.
- Condenser fan motors will be totally enclosed, 1-phase type with class B insulation and permanently lubricated bearings. Shafts will be corrosion resistant.
- Fan blades will be statically and dynamically balanced.
- Condenser fan openings will be equipped with coated steel wire safety guards.

Compressor

- Compressor will be hermetically sealed.
- Compressor will be mounted on rubber vibration isolators.

Condenser Coil

- Condenser coil will be air cooled.
- Coil will be constructed of copper or aluminum fins mechanically bonded to copper or aluminum tubes which are then cleaned, dehydrated, and sealed.

Refrigeration Components

- Refrigeration circuit components will include liquid-line shutoff valve with sweat connections, vapor-line shutoff valve with sweat connections, system charge of Puron® () refrigerant, and compressor oil.
- Unit will be equipped with low pressure switch and filter drier for Puron® () refrigerant.

Operating Characteristics

- The capacity of the unit will meet or exceed _____ Btuh at a suction temperature of _____ °F/°C. The power consumption at full load will not exceed _____ kW.
- Combination of the unit and the evaporator or fan coil unit will have a total net cooling capacity of _____ Btuh or greater at conditions of _____ CFM entering air temperature at the evaporator at _____ °F/°C wet bulb and _____ °F/°C dry bulb, and air entering the unit at _____ °F/°C.
- The system will have a SEER of _____ Btuh/watt or greater at DOE conditions.

Electrical Requirements

- Nominal unit electrical characteristics will be _____ v, single phase, 60 Hz. The unit will be capable of satisfactory operation within voltage limits of _____ v to _____ v.
- Nominal unit electrical characteristics will be _____ v, three phase, 60 Hz. The unit will be capable of satisfactory operation within voltage limits of _____ v to _____ v.
- Unit electrical power will be single point connection.
- Control circuit will be 24v.

Special Features

- Refer to section of this literature identifying accessories and descriptions for specific features and available enhancements.

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Edition Date: 03/21

7Catalog No: 24ACC4-05PD
Replaces:24ACC4-04PD

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APPENDIX 10.2:

OPERATIONAL CADNA NOISE CALCULATIONS

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14854 - Village at Junipero - Operation

CadnaA Noise Prediction Model: 14854-02_Operation.cna
Date: 19.10.22
Analyst: B. Maddux

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	**0.00**
Max. Search Radius (#(Unit,LEN))	**2000.01**
Min. Dist Src to Rcvr	**0.00**
Partition	
Raster Factor	**0.50**
Max. Length of Section (#(Unit,LEN))	**999.99**
Min. Length of Section (#(Unit,LEN))	**1.01**
Min. Length of Section (%)	**0.00**
Proj. Line Sources	**On**
Proj. Area Sources	**On**
Ref. Time	
Reference Time Day (min)	**960.00**
Reference Time Night (min)	**480.00**
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**0.00**
Model of Terrain	**Triangulation**
Reflection	
max. Order of Reflection	**2**
Search Radius Src	**100.00**
Search Radius Rcvr	**100.00**
Max. Distance Source - Rcvr	**1000.00 1000.00**
Min. Distance Rvcr - Reflector	**1.00 1.00**
Min. Distance Source - Reflector	**0.10**
Industrial (ISO 9613)	
Lateral Diffraction	**some Obj**
Obst. within Area Src do not shield	**On**
Screening	**Incl. Ground Att. over Barrier**
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	**3.0 20.0 0.0**
Temperature (#(Unit,TEMP))	**10**
rel. Humidity (%)	**70**
Ground Absorption G	**0.50**
Wind Speed for Dir. (#(Unit,SPEED))	**3.0**
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates			
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)	
R1		R1	46.5	39.0	47.2	0.0	0.0	0.0		x	Total	5.00	a	6286097.83	2208654.94	5.00	
R2		R2	41.6	34.6	42.5	0.0	0.0	0.0		x	Total	5.00	a	6286871.29	2208328.25	5.00	
R3		R3	46.2	38.4	46.7	0.0	0.0	0.0		x	Total	5.00	a	6285375.58	2208144.59	5.00	
R4		R4	47.1	41.8	49.2	0.0	0.0	0.0		x	Total	5.00	a	6285417.96	2208515.43	5.00	

Point Source(s)

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
POINTSOURCE		Trash	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6285508.39	2208384.05	5.00
POINTSOURCE		Trash	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6286094.33	2208406.84	5.00
POINTSOURCE		Trash	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6285705.87	2208014.04	5.00
POINTSOURCE		Trash	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6286143.16	2208005.36	5.00
POINTSOURCE		Trash	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6286467.59	2208029.23	5.00
POINTSOURCE		Park	73.4	73.4	73.4	Lw	73.4		900.00	0.00	270.00	5.00	a	6286417.68	2208037.91	5.00
POINTSOURCE		Park	73.4	73.4	73.4	Lw	73.4		900.00	0.00	270.00	5.00	a	6286360.17	2208036.83	5.00
POINTSOURCE		Park	73.4	73.4	73.4	Lw	73.4		900.00	0.00	270.00	5.00	a	6286264.68	2208304.84	5.00
POINTSOURCE		Park	73.4	73.4	73.4	Lw	73.4		900.00	0.00	270.00	5.00	a	6285509.48	2208113.87	5.00
POINTSOURCE		Park	73.4	73.4	73.4	Lw	73.4		900.00	0.00	270.00	5.00	a	6285735.17	2208176.80	5.00
POINTSOURCE		Park	73.4	73.4	73.4	Lw	73.4		900.00	0.00	270.00	5.00	a	6285510.56	2208352.58	5.00
POINTSOURCE		Park	73.4	73.4	73.4	Lw	73.4		900.00	0.00	270.00	5.00	a	6285649.45	2208452.41	5.00
POINTSOURCE		Park	73.4	73.4	73.4	Lw	73.4		900.00	0.00	270.00	5.00	a	6285721.06	2208452.41	5.00
POINTSOURCE		Park	73.4	73.4	73.4	Lw	73.4		900.00	0.00	270.00	5.00	a	6286096.50	2208503.41	5.00

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
POINTSOURCE		Park	73.4	73.4	73.4	Lw	73.4		900.00	0.00	270.00	5.00	a	6286095.41	2208440.48	5.00
POINTSOURCE		Swimmping Pool	94.6	94.6	94.6	Lw	94.6		900.00	0.00	0.00	5.00	a	6286273.36	2208152.93	5.00
POINTSOURCE		Outdoor	91.5	91.5	91.5	Lw	91.5		900.00	0.00	0.00	5.00	a	6285585.43	2208232.14	5.00
POINTSOURCE		Outdoor	91.5	91.5	91.5	Lw	91.5		900.00	0.00	0.00	5.00	a	6285880.57	2208232.14	5.00
POINTSOURCE		Outdoor	91.5	91.5	91.5	Lw	91.5		900.00	0.00	0.00	5.00	a	6286252.75	2208012.96	5.00
POINTSOURCE		Outdoor	91.5	91.5	91.5	Lw	91.5		900.00	0.00	0.00	5.00	a	6285922.89	2208475.20	5.00
AC001		AC001	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6286635.78	2208513.17	3.00
AC002		AC002	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6286636.86	2208471.94	3.00
AC003		AC003	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6286634.69	2208428.54	3.00
AC004		AC004	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6286490.38	2208515.34	3.00
AC005		AC005	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6286492.55	2208475.20	3.00
AC006		AC006	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6286493.63	2208428.54	3.00
AC007		AC007	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6286327.62	2208513.17	3.00
AC008		AC008	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6286330.87	2208473.03	3.00
AC009		AC009	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6286327.62	2208428.54	3.00
AC010		AC010	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6286208.26	2208514.26	3.00
AC011		AC011	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6286208.26	2208471.94	3.00
AC012		AC012	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6286208.26	2208430.71	3.00
AC013		AC013	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6285978.23	2208515.34	3.00
AC014		AC014	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6285984.74	2208469.77	3.00
AC015		AC015	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6285982.57	2208428.54	3.00
AC016		AC016	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6285862.12	2208514.26	3.00
AC017		AC017	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6285861.04	2208467.60	3.00
AC018		AC018	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6285858.87	2208430.71	3.00
AC019		AC019	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6285729.74	2208548.98	3.00
AC020		AC020	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6285687.43	2208552.24	3.00
AC021		AC021	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6285642.94	2208550.07	3.00
AC022		AC022	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6285510.56	2208517.51	3.00
AC023		AC023	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6285513.82	2208470.86	3.00
AC024		AC024	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6285512.73	2208428.54	3.00
AC025		AC025	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6285572.41	2208301.59	3.00
AC026		AC026	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6285617.98	2208304.84	3.00
AC027		AC027	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6285662.47	2208302.67	3.00
AC028		AC028	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6285759.04	2208302.67	3.00
AC029		AC029	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6285801.36	2208304.84	3.00
AC030		AC030	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6285841.51	2208301.59	3.00
AC031		AC031	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6285936.99	2208304.84	3.00
AC032		AC032	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6285984.74	2208303.76	3.00
AC033		AC033	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6286023.80	2208301.59	3.00
AC034		AC034	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6286113.86	2208300.50	3.00
AC035		AC035	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6286158.35	2208300.50	3.00
AC036		AC036	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6286200.67	2208300.50	3.00
AC037		AC037	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6286333.04	2208301.59	3.00
AC038		AC038	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6286376.45	2208300.50	3.00
AC039		AC039	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6286422.02	2208299.42	3.00
AC040		AC040	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6286518.59	2208296.16	3.00
AC041		AC041	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6286566.33	2208291.82	3.00
AC042		AC042	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6286609.74	2208298.33	3.00
AC043		AC043	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6286608.65	2208198.50	3.00
AC044		AC044	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6286567.42	2208196.33	3.00
AC045		AC045	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6286519.68	2208194.16	3.00
AC046		AC046	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6286386.21	2208200.67	3.00
AC047		AC047	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6286392.72	2208159.44	3.00
AC048		AC048	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6286390.55	2208116.04	3.00
AC049		AC049	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6286282.05	2208226.72	3.00
AC050		AC050	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6286151.84	2208213.70	3.00
AC051		AC051	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6286152.92	2208173.55	3.00
AC052		AC052	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6286152.92	2208127.98	3.00
AC053		AC053	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6285992.33	2208219.12	3.00
AC054		AC054	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6285991.25	2208172.46	3.00
AC055		AC055	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6285991.25	2208133.40	3.00
AC056		AC056	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6285868.63	2208163.78	3.00
AC057		AC057	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6285821.98	2208161.61	3.00
AC058		AC058	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6285777.49	2208160.53	3.00
AC059		AC059	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6285662.47	2208163.78	3.00
AC060		AC060	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6285613.64	2208162.70	3.00
AC061		AC061	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6285573.49	2208162.70	3.00
AC062		AC062	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6285574.58	2208004.28	3.00
AC063		AC063	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6285616.90	2208006.45	3.00
AC064		AC064	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6285662.47	2208005.36	3.00
AC065		AC065	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6285752.53	2208007.53	3.00
AC066		AC066	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6285794.85	2208005.36	3.00
AC067		AC067	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6285843.68	2208004.28	3.00
AC068		AC068	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6285935.91	2208007.53	3.00
AC069		AC069	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6285982.57	2208003.19	3.00
AC070		AC070	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6286020.54	2207999.94	3.00
AC071		AC071	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6286520.76	2208017.30	3.00

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
AC072		AC072	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6286566.33	2208019.47	3.00
AC073		AC073	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	g	6286606.48	2208018.38	3.00

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APPENDIX 11.1:

CONSTRUCTION CADNA NOISE CALCULATIONS

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14854 - Village at Junipero - Construction

CadnaA Noise Prediction Model: 14854-02_Construction.cna
Date: 19.10.22
Analyst: B. Maddux

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	**0.00**
Max. Search Radius (#(Unit,LEN))	**2000.01**
Min. Dist Src to Rcvr	**0.00**
Partition	
Raster Factor	**0.50**
Max. Length of Section (#(Unit,LEN))	**999.99**
Min. Length of Section (#(Unit,LEN))	**1.01**
Min. Length of Section (%)	**0.00**
Proj. Line Sources	**On**
Proj. Area Sources	**On**
Ref. Time	
Reference Time Day (min)	**960.00**
Reference Time Night (min)	**480.00**
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**0.00**
Model of Terrain	**Triangulation**
Reflection	
max. Order of Reflection	**2**
Search Radius Src	**100.00**
Search Radius Rcvr	**100.00**
Max. Distance Source - Rcvr	**1000.00 1000.00**
Min. Distance Rvcr - Reflector	**1.00 1.00**
Min. Distance Source - Reflector	**0.10**
Industrial (ISO 9613)	
Lateral Diffraction	**some Obj**
Obst. within Area Src do not shield	**On**
Screening	**Incl. Ground Att. over Barrier**
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	**3.0 20.0 0.0**
Temperature (#(Unit,TEMP))	**10**
rel. Humidity (%)	**70**
Ground Absorption G	**0.50**
Wind Speed for Dir. (#(Unit,SPEED))	**3.0**
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
R1		R1	0.0	0.0	0.0	0.0	0.0	0.0		x	Total	5.00	a	6202632.95	2267451.43	0.00
R2		R2	0.0	0.0	0.0	0.0	0.0	0.0		x	Total	5.00	a	6202403.03	2265606.26	0.00
R3		R3	0.0	0.0	0.0	0.0	0.0	0.0		x	Total	5.00	a	6202086.88	2265955.34	0.00
R4		R4	0.0	0.0	0.0	0.0	0.0	0.0		x	Total	5.00	a	6201793.65	2266490.05	0.00

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)		
Construction Area		ConstructionArea00001	120.4	15.6	15.6	68.3	-36.4	-36.4	PWL-Pt	115.6					8	a

Name	Height			Coordinates			
	Begin		End	x	y	z	Ground
	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
Construction Area	8.00	a		6201849.15	2267572.97	0.00	0.00
				6201872.34	2267582.10	0.00	0.00
				6201972.11	2267585.92	0.00	0.00
				6202033.21	2267626.89	0.00	0.00
				6202063.60	2267627.35	0.00	0.00
				6202142.15	2267628.56	0.00	0.00
				6202194.09	2267629.36	0.00	0.00
				6202215.85	2267621.22	0.00	0.00
				6202283.94	2267595.73	0.00	0.00

Name	Height		Coordinates			
	Begin	End	x	y	z	Ground
	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
			6202315.86	2267583.77	0.00	0.00
			6202523.04	2267370.25	0.00	0.00
			6202608.65	2267396.40	0.00	0.00
			6202639.03	2267424.52	0.00	0.00
			6202901.04	2267666.98	0.00	0.00
			6202896.73	2265769.44	0.00	0.00
			6202246.78	2265777.69	0.00	0.00
			6202212.96	2265902.74	0.00	0.00
			6202199.07	2265947.01	0.00	0.00
			6202176.06	2265991.28	0.00	0.00
			6202137.00	2266045.53	0.00	0.00
			6202065.82	2266141.89	0.00	0.00
			6202015.91	2266206.56	0.00	0.00
			6201995.09	2266225.90	0.00	0.00
			6201972.96	2266243.73	0.00	0.00
			6201949.62	2266259.95	0.00	0.00
			6201925.19	2266274.48	0.00	0.00
			6201899.80	2266287.25	0.00	0.00
			6201873.57	2266298.19	0.00	0.00
			6201846.64	2266307.25	0.00	0.00

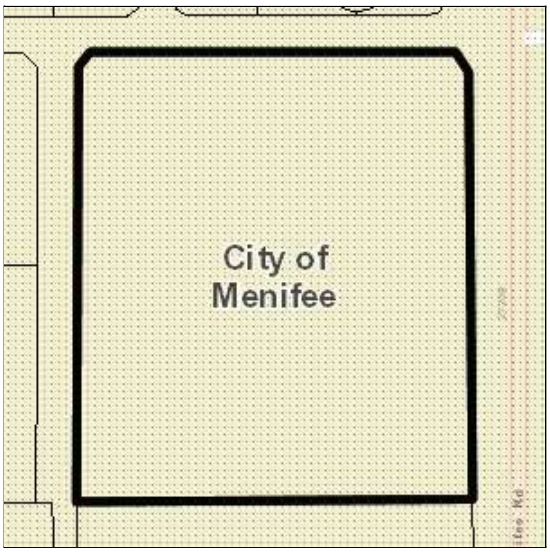
Riverside County Parcel Report

APN(s):333070053

DISCLAIMER

Maps, permit information and data are to be used for reference purposes only. Map features are approximate, and are not necessarily accurate to surveying or engineering standards. The County of Riverside makes no warranty or guarantee as to the content (the source is often third party), accuracy, timeliness, or completeness of any of the data provided, and assumes no legal responsibility for the information contained on this map. Any use of this product with respect to accuracy and precision shall be the sole responsibility of the user.

MAPS/IMAGES



PARCEL

APN	333-070-053-8	Supervisorial District	Boundaries for Districts 2, 4 and 5 will be updated in January, 2023. Boundaries for Districts 1 and 3 will be updated in January, 2025. JEFF HEWITT, DISTRICT 5
Previous APN	333070053 333070045	Township/Range	T5SR3W SEC 23 NE
Owner Name	NOT AVAILABLE ONLINE	Elevation	1464 ft
Address		Thomas Bros. Map Page/Grid	PAGE: 838, GRID: G4
Mailing Address	333070053 2245 W 190TH ST TORRANCE CA 90504	Indian Tribal Land	NOT IN A TRIBAL LAND
Legal Description	333070053 Recorded Book/Page: MB 15/29 Subdivsion Name: ROMOLA FARMS 10 Lot/Parcel: 971 Block: Tract Number:	City Boundary	MENIFEE
		City Spheres of influence	NOT IN A CITY SPHERE
Lot Size	333070053 Recorded lot size is 8.56 acres	March Joint Powers Authority	NOT IN THE JURISDICTION OF THE MARCH JOINT POWERS AUTHORITY

Property Characteristcs	333070053 Year Constructed: Baths: Bedrooms: Construction Type: Garage Type: Property Area (sq ft): Roof Type: Stories: Pool: NO Central Cool: NO Central Heat: NO	County Service Area	NOT IN A COUNTY SERVICE AREA
Annexation Date	2007-40-3&5 10/01/2008	LAFCO Case	2007-40-3&5 10/01/2008
Proposals	N/A		

PLANNING more...

Specific Plans	NOT IN A SPECIFIC PLAN	Historic Preservation Districts	NOT IN A HISTORIC PRESERVATION DISTRICT
Land Use Designations	CITY	Agricultural Preserve	NOT IN AN AGRICULTRAL PRESERVE
General Plan Policy Overlays	N/A		
Area Plan (RCIP)	Sun City / Menifee Valley	Airport Influence Areas	MARCH AIR RESERVE BASE
General Plan Policy Areas	NOT IN A GENERAL PLAN POLICY AREA	Airport Compatibility Zones	MARCH AIR RESERVE BASE, ZONE E
Zoning Classifications (ORD. 348)	CHECK WITH THE CITY FOR MORE INFORMATION	Zoning Districts and Zoning Areas	NOT IN A ZONING DISTRICT/AREA
Zoning Overlays	NOT IN A ZONING OVERLAY	Community Advisory Councils	NOT IN A COMMUNITY ADVISORY COUNCIL
Enviromental Justice Communities	NOT IN AN ENVIRONMENTAL JUSTICE COMMUNITY		

Residential Permit Stats

N/A

ENVIRONMENTAL more...

CVMSHCP (Coachella Valley Multi-Species Habitat Conservation Plan) Plan Area	NOT IN A COACHELLA VALLEY MSHCP FEE AREA	WRMSHCP (Western Riverside County Multi-Species Habitat Conservation Plan) Cell Group	NOT IN A CELL GROUP
CVMSHCP (Coachella Valley Multi-Species Habitat Conservation Plan) Conservation Area	NOT COACHELLA VALLEY CONSERVATION AREA	WRMSHCP Cell Number	NOT IN A CELL NUMBER
CVMSHCP Fluvial Sand Transport Special Provision Areas	NOT IN A FLUVIAL SAND TRANSPORT SPECIAL PROVISION AREA	HANS/ERP (Habitat Acquisition and Negotiation Strategy/Expedited Review Process)	NOT IN A HANS/ERP PROJECT
WRMSHCP (Western Riverside County Multi-Species Habitat Conservation Plan) Plan Area	WESTERN RIVERSIDE COUNTY	Vegetation (2005)	AGRICULTURE MAPPING UNIT

Fire

Fire Hazard Classification (Ord. 787)	NOT IN A FIRE HAZARD ZONE	Fire Responsibility Area	NOT IN A FIRE RESPONSIBILITY AREA

DEVELOPMENT FEES

CVMSHCP (Coachella Valley Multi-Species Habitat Conservation Plan) Fee Area (Ord 875)	NOT IN A COACHELLA VALLEY MSHCP FEE AREA	RBBD (Road & Bridge Benefit District)	NOT IN A ROAD BRIDGE BENEFIT DISTRICT
WRMSHCP (Western Riverside County Multi-Species	WESTERN RIVERSIDE	DIF (Development Impact Fee	SUN CITY/MENIFEE, AREA

Habitat Conservation Plan) Fee Area (Ord. 810)	COUNTY	Area Ord. 659)	17
Western TUMF (Transportation Uniform Mitigation Fee Ord. 824)	IN OR PARTIALLY WITHIN A TUMF FEE AREA	SKR Fee Area (Stephenâ€™s Kagaroo Rat Ord. 663.10)	IN OR PARTIALLY WITHIN THE SKR FEE AREA
Eastern TUMF (Transportation Uniform Mitigation Fee Ord. 673)	NOT IN THE EASTERN TUMF FEE AREA	DA (Development Agreements)	NOT IN A DEVELOPMENT AGREEMENT

TRANSPORTATION more...

Circulation Element Ultimate Right-of-Way	IN OR PARTIALLY WITHIN A CIRCULATION ELEMENT RIGHT-OF-WAY	Road Book Page	113
		Transportation Agreements	NOT IN A TRANS AGREEMENT
		CETAP (Community and Environmental Transportation Acceptability Process) Corridors	NOT IN A CETAP CORRIDOR

HYDROLOGY

Flood Plan Review	OUTSIDE FLOODPLAIN, REVIEW NOT REQUIRED	Watershed	SAN JACINTO VALLEY
Water District	EASTERN MUNICIPAL WATER DISTRICT		
Flood Control District	RIVERSIDE COUNTY FLOOD CONTROL DISTRICT		

GEOLOGIC

Fault Zone	NOT IN A FAULT ZONE	Paleontological Sensitivity	HIGH SENSITIVITY (HIGH B): SENSITIVITY EQUIVALENT TO HIGH A, BUT IS BASED ON THE OCCURRENCE OF FOSSILS AT A SPECIFIED DEPTH BELOW THE SURFACE. THE CATEGORY HIGH B INDICATES THAT FOSSILS ARE LIKELY TO BE ENCOUNTERED AT OR BELOW FOUR FEET OF DEPTH, AND MAY BE IMPACTED DURING EXCAVATION BY CONSTRUCTION ACTIVITIES.
Faults	NOT IN A FAULT LINE		
Liquefaction Potential	LOW		
Subsidence	SUSCEPTIBLE		

MISCELLANEOUS

School District	ROMOLAND & PERRIS UNION HIGH
Communities	MENIFEE
Lighting (Ord. 655)	ZONE: B
Census Tract	427.28
Farmland	LOCAL IMPORTANCE
Special Notes	NO SPECIAL NOTES
Tax Rate Areas	026195 - CITY OF MENIFEE 026195 - CITY OF MENIFEE FIRE PROTECTION 026195 - CO FREE LIBRARY 026195 - CSA 145 MENIFEE 026195 - CSA 152 026195 - CSA 33 MENIFEE 026195 - CSA 86 MENIFEE 026195 - EMWD 026195 - EMWD IMP DIST 13 026195 - EMWD IMP DIST A 026195 - FLOOD CONTROL ADMIN 026195 - FLOOD CONTROL ZN 4 026195 - GENERAL 026195 - GENERAL PURPOSE 026195 - MT SAN JACINTO JR COLLEGE 026195 - MWD EAST 1301999 026195 - PERRIS AREA ELEM SCHOOL FUND 026195 - PERRIS JR HIGH AREA FUND 026195 - PERRIS UNION HS

026195 - PERRIS VALLEY CEMETERY
026195 - RIV CO REGIONAL PARK & OPEN SP
026195 - RIVERSIDE CO OFC OF EDUCATION
026195 - ROMOLAND SCHOOL
026195 - SAN JACINTO BASIN RESOURCE CONS
026195 - SO. CALIF,JT(19,30,33,36,37,56)
026195 - VALLEY HEALTH SYSTEM HOSP DIST

Department of Enviromental Health Permits

Septic Permits

Record Id	Application Date	Plan Check Approved Date	Final Inspection Date	Approved Date
N/A	N/A	N/A	N/A	N/A

Well Water Permits

Record Id	PE	Permit Paid Date	Permit Approved Date	Well Finaled Date
N/A	N/A	N/A	N/A	N/A

PLUS PERMITS & CASES

Administrative Cases

Case		Case Description	Status
N/A	N/A		N/A

Building and Safety Cases

Case		Case Description	Status
N/A	N/A		N/A

Code Cases

Case		Case Description	Status
N/A	N/A		N/A

Fire Cases

Case		Case Description	Status
N/A	N/A		N/A

Planning Cases

Case	Case Description	Status
CFG04266	CA FISH AND GAME FOR EA40841	PAID
CFG04691	CALIFORNIA FISH AND GAME FOR EA41320	PAID
CUP03549	SHOPPING CNTR GAS/GROCERY & COMMERCIAL BLDGS	ANNEXED
CZ07334	CHANGE R-1 TO R-3	ANNEXED
CZ07501	CHANGE ZONE FROM R-1 TO C-P-S	ANNEXED
EA40841	EA FOR TR33905 CZ07334	ANNEXED
EA41320	PM34998 CUP03549 CZ07501 CFG04691	ANNEXED
GEO01895	GEOLOGIC REVIEW FOR CUP03549 & PM34998	APPROVED
GEO02422	GEO REVIEW FOR THE CITY OF MENIFEE PP2014-189 AND CZ2014-190.	APPLIED
PAR00787	REV APPLICATION FOR PAR. FOR GENERAL FOOD, RETAIL, AND DRIVE THRU. PHASE 2 INCLUDES MINI-WAREHOUSE STORAGE, PHASE 2 ALSO INCLUDES MULTI-FAM RES.	APPROVED

PDA04307	A CULTURAL RESOURCES INVENTORY: ARCHAEO ASSESSMENT	APPLIED
PDA04510	PHASE II ARCHAEOLOGICAL TESTING AND EVALUATION	APPLIED
PDA04532	PHASE I ARCHAEOLOGICAL ASSESSMENT	APPLIED
PDB05042	MSHCP COMPLIANCE REPORT & BUOWL HA REPORT:6/1/07 SURVEY:5/29/07	APPROVED
PDB06129	GENERAL BIOLOGICAL ASSESSMENT THE VILLAGE AT JUNIPERO DATE OF SURVEY: 12/14/15 DATE OF REPROT: 1/23/15 BY: KAREN KIRTLAND CASE: ME00095 (CITY OF MENIFEE) (CITY OF MENIFEE: PP2014-189 AND CZ2014-190)	APPROVED
PDB06502	NESTING SEASON SURVEY BURROWING OWL_____ DATE OF SURVEY: 3/27/17, 3/25/17, 3/31/17, 4/7/17 DATE OF REPORT: 4/12/17 BY: PAUL PRINCIPE ME00157 (CITY OF MENIFEE: 2017-089, 2017-090, 2017 -091)	EXPIRED
PM34998	DIVIDE 16AC INTO THREE PARCELS	ANNEXED
TR33905	179 UNIT GATED W/ATTACHED&DETACHED HSG/CLUBHS/POOL /PARK	ANNEXED

Survey Cases

Case	Case Description	Status
MAP37624	PARCEL MAP NUMBER IN THE CITY OF MENIFEE	APPLIED
MAP38340	TRACT MAP NUMBER FOR APN'S 333-070-018, 019 & 053 IN THE CITY OF MENIFEE CA. 19025 ACRES	APPLIED

Transportation Cases

Case	Case Description	Status
N/A	N/A	N/A