

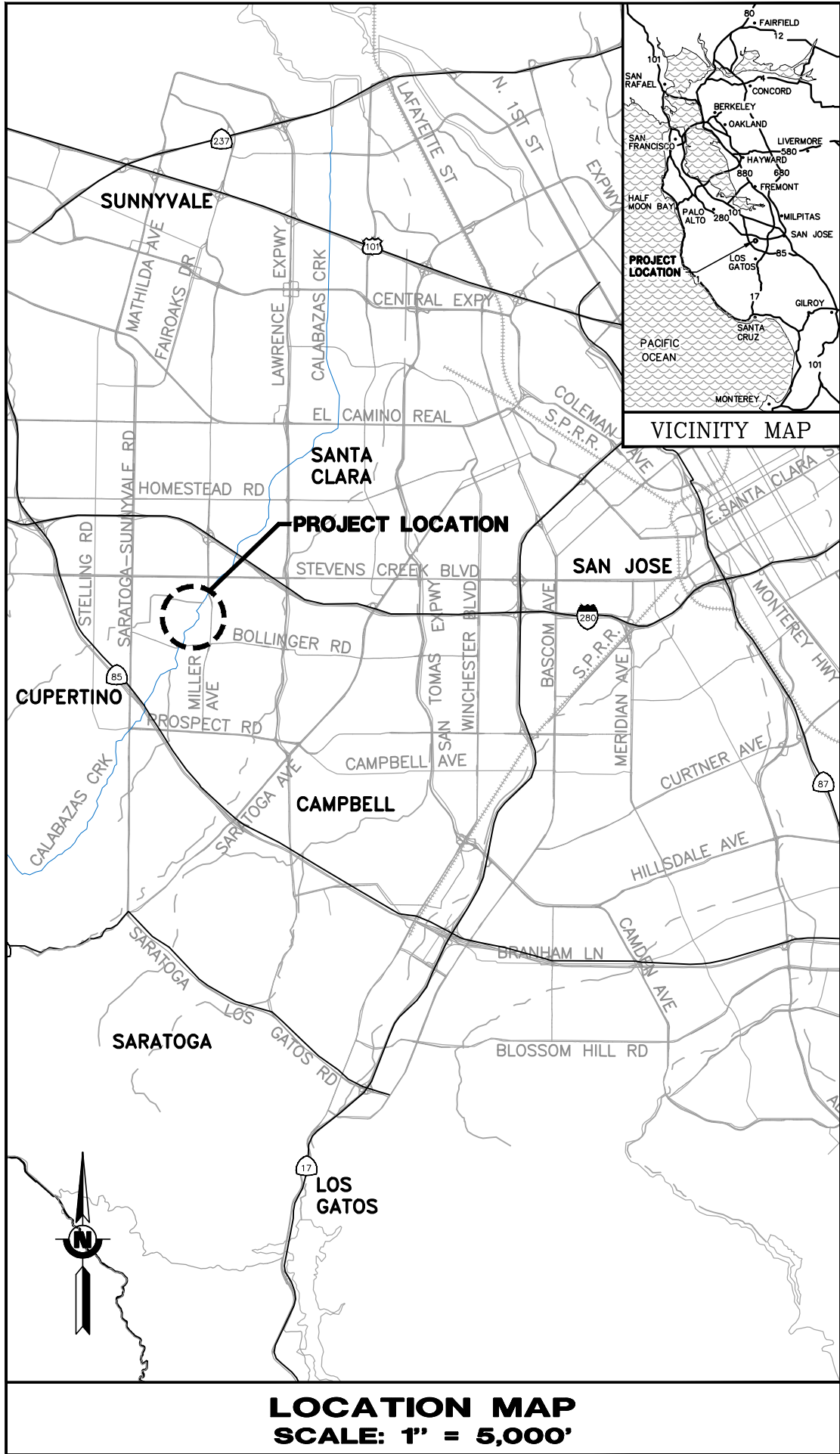
Appendix A

Representative Draft Design Plans

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2

DOCUMENT NUMBER: XXXX-X-0000-00000



LOCATION MAP
SCALE: 1" = 5,000'

MAP AND CONSTRUCTION PLAN

FOR

CALABAZAS CREEK

REHABILITATION PROJECT

MILLER AVENUE TO BOLLINGER ROAD
CUPERTINO, CALIFORNIA

SANTA CLARA VALLEY WATER DISTRICT



APPROVED BY:

VENKATESAN NARASIMHALU, PE, PLS
CAPITAL ENGINEERING MANAGER
WATERSHED DESIGN AND CONSTRUCTION DIVISION
SANTA CLARA VALLEY WATER DISTRICT

DATE



ACCEPTED BY:

NGOC NGUYEN, PE
DEPUTY OPERATING OFFICER
WATERSHED DESIGN AND CONSTRUCTION DIVISION
SANTA CLARA VALLEY WATER DISTRICT

DATE

CONTRACT NUMBER	C-XXXXX
PROJECT NUMBER	62084001
SHEET CODE:	G-01
SHEET NUMBER:	1 OF XX

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ABBREVIATIONS

ABM	— AIR BLOWN MORTAR	MAINT	— MAINTENANCE
ABS	— ACRYLONITRILE-BUTADIENE-STYRENE	MAX	— MAXIMUM
AC	— ASPHALT CONCRETE	MCD	— MULTIPLE CONDUITS
ACP	— ASBESTOS CEMENT PIPE	MCI	— MCI TELECOMMUNICATION CORP.
AISI	— AMERICAN IRON & STEEL INSTITUTE	MH	— MANHOLE
ALIGN	— ALIGNMENT	MIN	— MINIMUM
AMP	— AMPERES	MON	— MONUMENT
ANSI	— AMERICAN NATIONAL STANDARDS INSTITUTE	MW	— MONITORING WELL
APPROX	— APPROXIMATE		
ARV	— AIR RELEASE VALVE	N	— NITROGEN
ASA	— AMERICAN STANDARD ASSOCIATION	N/A	— NOT APPLICABLE
ASTM	— AMERICAN SOCIETY FOR TESTING MATERIALS	NE	— NORTHEAST
AWG	— AMERICAN WIRE GAGE	NEMA	— NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
AWWA	— AMERICAN WATER WORKS ASSOCIATION	NO	— NUMBER
		NTS	— NOT TO SCALE
		NW	— NORTHWEST
BC	— BEGIN CURVE	OC	— ON CENTER
BM	— BENCH MARK	OD	— OUTSIDE DIAMETER
BT	— BACKHOE TRENCH	OF	— OUTSIDE FACE
BW	— BOTH WAYS	OH	— OVERHEAD
		OW	— OBSERVATION WELL
CL	— CENTERLINE	PL	— PLASTIC LINE
CB	— CATCH BASIN (INLET)	PCC	— PORTLAND CEMENT CONCRETE
CCCL	— CEMENT MORTAR COATED & LINED STEEL PIPE	PCCP	— PRESTRESSED CONCRETE CYLINDER PIPE
CCEM	— CEMENT CONDUIT	PE	— PLAIN END
CCTL	— CORROSION CONTROL TEST LEADS	PG&E	— PACIFIC GAS AND ELECTRIC
CCP	— CONCRETE CYLINDER PIPE	PI	— POINT OF INTERSECTION
CFM	— CUBIC FEET PER MINUTE	PK	— PARKER-KALON SURVEY NAIL
CI	— CAST IRON	PL	— PLASTIC LINE
CIP	— CAST IRON PIPE	POT	— POINT ON TANGENT
CL	— CLEARANCE	PP	— POWER POLE
CLR	— CLEAR	PRC	— POINT OF REVERSE CURVE
CMC	— CEMENT MORTAR COAT	PSI	— POUND PER SQUARE INCH
CML	— CEMENT MORTAR LINE	PT&T	— PACIFIC TELEPHONE AND TELEGRAPH
CMP	— CORRUGATED METAL PIPE	PUE	— PUBLIC UTILITY EASEMENT
CO	— CLEAN OUT	PV	— PRECAST VAULT
CONC	— CONCRETE	PVC	— POLYVINYL CHLORIDE
CONT	— CONTINUOUS	PVM	— PAVEMENT
CP	— CEMENT PIPE	PVMT	— PUMPING WELL
CPC	— PLASTIC CONDUIT		
CRK	— CREEK	R	— RADIUS
CSP	— CORRUGATED STEEL PIPE	RCB	— REINFORCED CONCRETE BOX
CTP	— CABLE TELEVISION POLE	RCP	— REINFORCED CONCRETE PIPE
CTV	— CABLE TV	RE	— REFERENCE ELECTRODE
CU FT	— CUBIC FEET	REBAR	— REINFORCING BAR
CYL	— CYLINDER	REINF	— REINFORCED
CIPP	— CAST-IN-PLACE PIPE	REQ'D	— REQUIRED
		RR	— RAILROAD
DH	— DRILL HOLES	RSP	— ROCK SLOPE PROTECTION
DIA	— DIAMETER	RT	— RIGHT
DICL	— DUCTILE IRON CEMENT LINED	RTU	— REMOTE TERMINAL UNIT
DIP	— DUCTILE IRON PIPE	R/W	— RIGHT OF WAY
DPDT	— DOUBLE POLE DOUBLE THROW		
D/S	— DOWNSTREAM	S	— SLOPE
DWR	— DEPARTMENT OF WATER RESOURCES	SCHED	— SCHEDULE
		SCWMD	— SANTA CLARA VALLEY WATER DISTRICT
EC	— END CURVE	SD	— STORM DRAIN
EG	— EXISTING GROUND	SE	— SOUTHEAST
ELEC	— ELECTRICAL	SHT	— SHEET
ELEV	— ELEVATION	SJMW	— SAN JOSE MUNICIPAL WATER
EP	— EDGE OF PAVEMENT	SJWC	— SAN JOSE WATER COMPANY
EQ	— EQUAL	SOMCL	— STANDARD OIL MASTIC CEMENT LINED
EXIST	— EXISTING	SPECS	— SPECIFICATIONS
		SPRR	— SOUTHERN PACIFIC RAILROAD
FF	— FULL FORCE	SQ	— SQUARE
FH	— FIRE HYDRANT	SS	— SANITARY SEWER
FKCL	— FIBERGLASS-KRAFT WRAP CEMENT LINED	SSTL	— STAINLESS STEEL
FLG	— FLANGE	ST	— STREET
FP	— FEEDER PRESSURE	STA	— STATION
FT	— FEET	STD	— STANDARD
		STL	— STEEL
GA	— GAGE	STRD	— STRANDED
GALV	— GALVANIZED	SW	— SOUTHWEST
GFI	— GROUND FAULT INTERRUPTER	SYM	— SYMMETRICAL
HC	— HOUSE CONNECTION (SANITARY)	T	— TELEPHONE
HMW/PE	— HIGH MOLECULAR WEIGHT POLYETHYLENE	T	— THICKNESS OF PLATE OR DIMENSION OF WELD
HORIZ	— HORIZONTAL	TBM	— TEMPORARY BENCH MARK
HP	— HORSEPOWER	TC	— TELEMTRY CABLE
		TCA	— TEMPORARY CONSTRUCTION AREA
ID	— INSIDE DIAMETER	TCE	— TEMPORARY CONSTRUCTION EASEMENT
IF	— INSIDE FACE	TCS	— TELEMTRY CABLE SPLICE
IL	— INDUCTIVE LOOP	TEL	— TELEPHONE
IN	— INCH	THW	— THERMAL PLASTIC MOISTURE AND HEAT RESISTANT
INSUL	— INSULATION	THWN	— THERMAL PLASTIC WITH NYLON COATING
INV	— INVERT		
IP	— IRON PIPE	TOB	— TOP OF BANK
IPS	— IRON PIPE SIZE	TP	— TEST PIT LOCATION
		TR	— TAPE WRAPPED
JT	— JOINT TRENCH	TS	— TRAFFIC SIGNAL
		TYP	— TYPICAL
KV	— KILO VOLT		
		UG	— UNDERGROUND
LB	— CONDUIT FITTING ELBOW	UPRR	— UNION PACIFIC RAILROAD
LG	— LONG	U/S	— UPSTREAM
LLV	— LONG LEG VERTICAL	USGS	— UNITED STATES GEOLOGICAL SURVEY
LT	— LEFT		

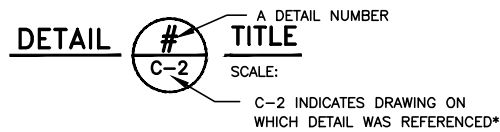
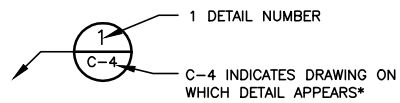
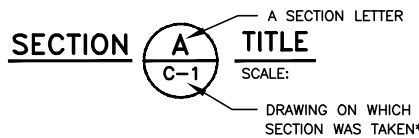
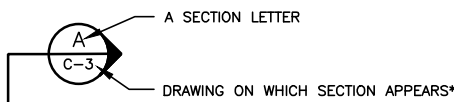
V — VOLTAGE
VAC — VOLTAGE ALTERNATING CURRENT
VCD — VACANT CONDUIT
VCP — VITRIFIED CLAY PIPE
VERT — VERTICAL

W — WATER
WP — WORK POINT
WSP — WELDED STEEL PIPE
WSCS — WRAPPED STEEL CEMENT LINED
WV — WATER VALVE
WWF — WELDED WIRE FABRIC
W/ — WITH

& — AND
AT — AT
CL — CENTERLINE
D — DIAMETER
PL — PROPERTY LINE

DETAIL AND SECTION DESIGNATION

* IF SECTION OR DETAIL APPEARS ON THE SAME DRAWING AS THE CALLOUT, THE DRAWING REFERENCE IS REPLACED WITH A DASH (-)



EXISTING

EXISTING GROUDED RIPRAP

EXISTING RIPRAP

EXISTING CONCRETE

EXISTING DIRT

EXISTING SACKED CONCRETE

EXISTING DEBRIS

EXISTING LOGS

PROPOSED

GROUDED RIPRAP

RIPRAP

CONCRETE

NEW FILL

BACKING NO.1

GROUT

LOGS

EXISTING

CTV — CABLE TELEVISION
E — ELECTRICAL
E/T — ELECTRICAL & TELEPHONE LINE
E(OH) — ELECTRICAL LINE - OVERHEAD
G — GAS LINE
IR — IRRIGATION LINE
SD — STORM DRAIN LINE
SS — SANITARY SEWER LINE
T — TELEPHONE LINE
T(OH) — TELEPHONE LINE - OVERHEAD
TS — TRAFFIC SIGNAL LINE
TC — TELEMTRY LINE
W — WATER LINE
RCW — RECYCLED WATER LINE
X — BARBED WIRE FENCE LINE
O — CHAIN LINK FENCE LINE
F — WOODEN FENCE LINE
TOP — CUT OR FILL SLOPE
TOE — CENTER LINE
CL — CENTER LINE
G — GROUND
PL — PROPERTY-LINE
ROW — ROW-TRACT
ROW — ROW-FEE
TCE — TCE
LOT — LOT LINE
BOUND — BOUNDARY LINE

LINE TYPE LEGEND

PROPOSED

CTV — CABLE TELEVISION
E — ELECTRICAL
E/T — ELECTRICAL & TELEPHONE LINE
E(OH) — ELECTRICAL LINE - OVERHEAD
G — GAS LINE
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CL — CENTER LINE
G — GROUND
PL — PROPERTY-LINE
ROW — ROW-TRACT
ROW — ROW-FEE
TCE — TCE
LOT — LOT LINE
BOUND — BOUNDARY LINE

SYMBOLS LEGEND

SURVEY

△ — HORIZONTAL CONTROL
○ — VERTICAL CONTROL
△ — HORIZONTAL VERTICAL CONTROL
⊕ — TEMPORARY BENCH MARK

TRAFFIC CONTROL

SIGN-1
SIGN-2
BUS STOP
TRAFFIC DIRECTION
TRAFFIC CONE
CONSTRUCTION SIGN
FLASHING ARROW SIGN
TYPE I — TRAFFIC BARRICADE
TYPE III — TRAFFIC BARRICADE
K-RAIL BARRIER

MISCELLANEOUS

ELECTROLIER
ELECTROLIER
GUY WIRE
STORM DRAIN OUTFALL

EXISTING

EXISTING JOINT POLE
EXISTING POWER POLE
EXISTING TELEPHONE POLE
EXISTING ELECTRICAL MANHOLE
EXISTING ELECTRIC METER
EXISTING STORM DRAIN MANHOLE
EXISTING CATCH BASIN / SD INLET
EXISTING SANITARY CLEANOUT
EXISTING SANITARY MANHOLE
EXISTING TELEPHONE MANHOLE
EXISTING WATER VALVE
EXISTING WATER METER
EXISTING BLOWOFF
EXISTING FIRE HYDRANT
EXISTING GAS VALVE
EXISTING GAS METER
EXISTING DEEP ANODE BED
EXISTING REFERENCE ELECTRODE TEST STATION
EXISTING INSULATION JOINT
EXISTING PRECAST VAULT
EXISTING TELEMTRY CABLE PULLBOX
EXISTING VENTILATION STRUCTURE
EXISTING TREE

PROPOSED

PROPOSED JOINT POLE
PROPOSED POWER POLE
PROPOSED TELEPHONE POLE
PROPOSED ELECTRICAL MANHOLE
PROPOSED ELECTRIC METER
PROPOSED STORM DRAIN MANHOLE
PROPOSED CATCH BASIN / SD INLET
PROPOSED SANITARY CLEANOUT
PROPOSED SANITARY MANHOLE
PROPOSED TELEPHONE MANHOLE
PROPOSED WATER VALVE
PROPOSED WATER METER
PROPOSED BLOWOFF
PROPOSED FIRE HYDRANT
PROPOSED GAS VALVE
PROPOSED GAS METER
PROPOSED DEEP ANODE BED
PROPOSED REFERENCE ELECTRODE TEST STATION
PROPOSED INSULATION JOINT
PROPOSED PRECAST VAULT
PROPOSED TELEMTRY CABLE PULLBOX
PROPOSED VENTILATION STRUCTURE
PROPOSED TREE

DATE
APR 2020
DESIGN
J. LO
DRAWN
J. CORDOVA
CHECKED
R. NARSIM

ENGINEERING CERTIFICATION
PROJECT ENGINEER
DATE

SANTA CLARA VALLEY WATER DISTRICT



PROJECT NAME AND SHEET DESCRIPTION:

CALABAZAS CREEK
REHABILITATION PROJECT

ABBREVIATIONS, LEGENDS AND SYMBOLS

SCALE
AS SHOWN

VERIFY SCALES

0 1"
BAR IS ONE INCH ON
ORIGINAL DRAWING
IF NOT ONE INCH ON
THIS SHEET, ADJUST
SCALES ACCORDINGLY

PROJECT NUMBER
62084001

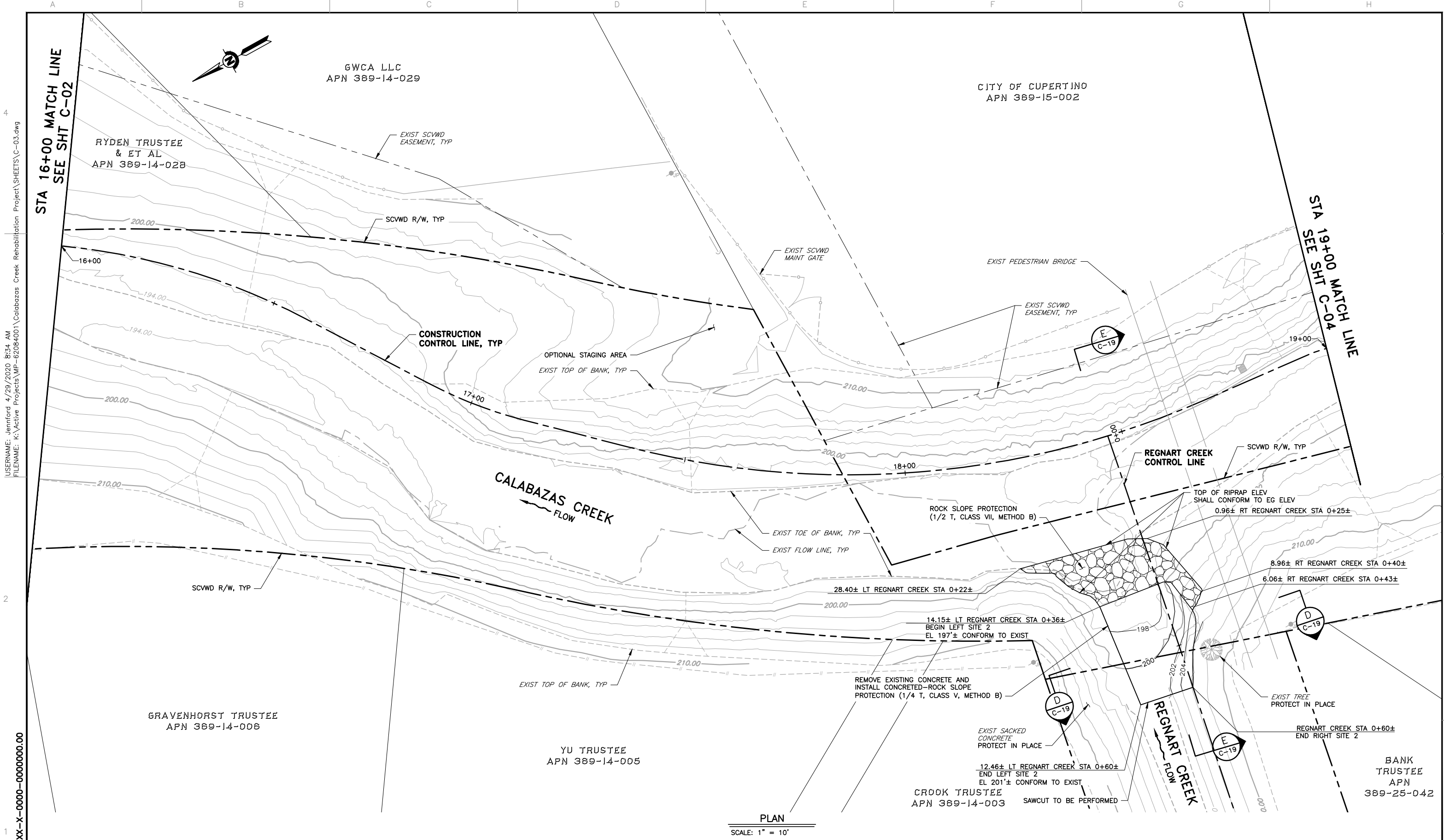
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G-04

SHEET NUMBER:
XX OF XXX



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				1. NOT ALL TREES SHOWN. ONLY TREES NEAR PROPOSED WORK ARE SHOWN AND ARE FOR INFORMATIONAL PURPOSE ONLY. SEE SHEET C-16 FOR TREE REMOVAL TABLES.	APR 2020			CALABAZAS CREEK REHABILITATION PROJECT PLAN STA 10+00 TO STA 13+00	AS SHOWN	62084001
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					J. LO					C-01
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					J. CORDOVA					
					CHECKED					
					R. NARSIM	PROJECT ENGINEER	DATE			



REV				DESCRIPTION				DATE		APPR		REFERENCE INFORMATION AND NOTES										DATE		ENGINEERING CERTIFICATION		SANTA CLARA VALLEY WATER DISTRICT		PROJECT NAME AND SHEET DESCRIPTION:										SCALE		PROJECT NUMBER	
												1. NOT ALL TREES SHOWN. ONLY TREES NEAR PROPOSED WORK ARE SHOWN AND ARE FOR INFORMATIONAL PURPOSE ONLY. SEE SHEET C-16 FOR TREE REMOVAL TABLES.										APR 2020						CALABAZAS CREEK REHABILITATION PROJECT										AS SHOWN		62084001	
																						DESIGN						PLAN										VERIFY SCALES		SHEET CODE:	
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																						CHECKED																			
																						R. NARSIM		PROJECT ENGINEER		DATE															

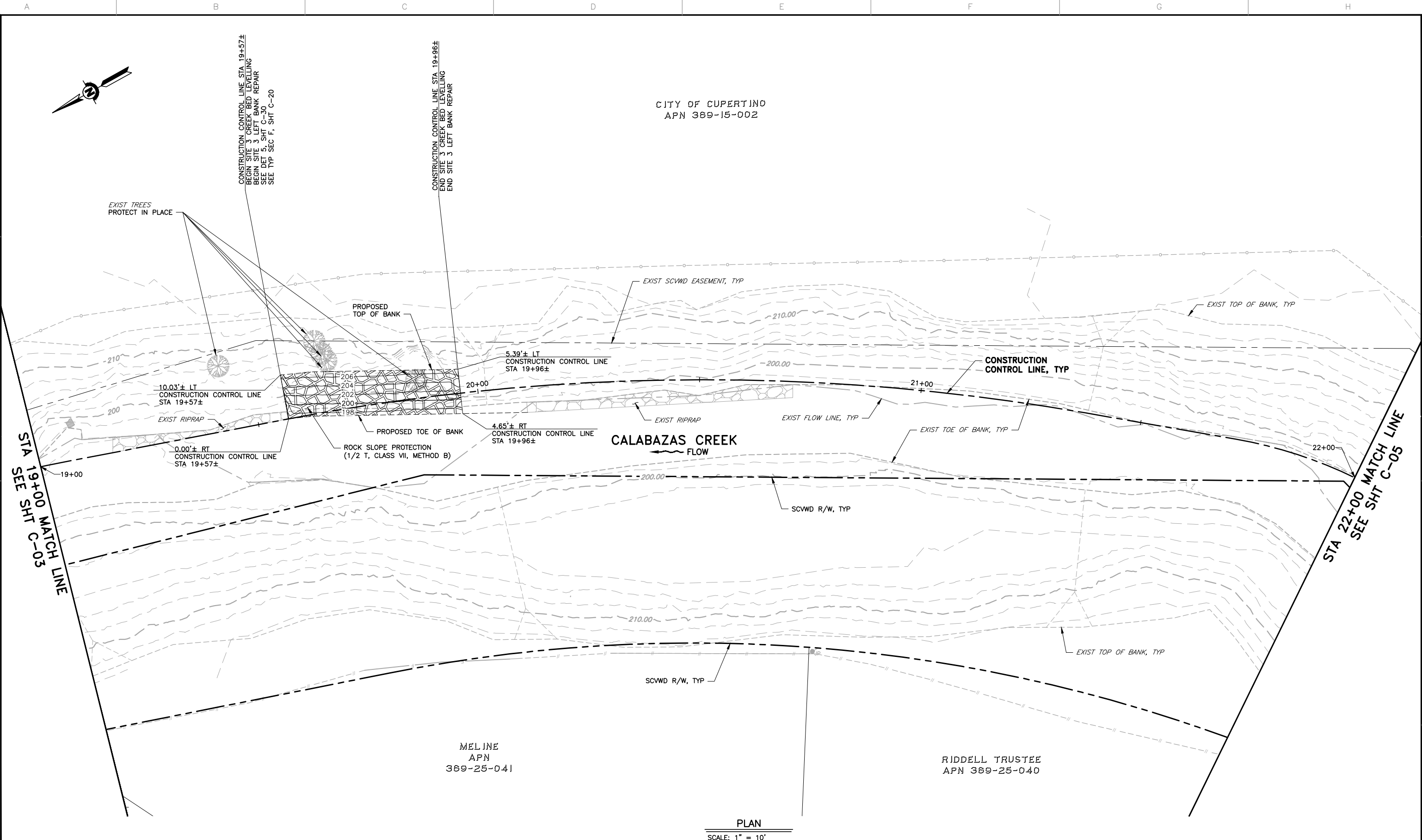
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REFERENCE INFORMATION AND NOTES	
1. NOT ALL TREES SHOWN. ONLY TREES NEAR PROPOSED WORK ARE SHOWN AND ARE FOR INFORMATIONAL PURPOSE ONLY. SEE SHEET C-16 FOR TREE REMOVAL TABLES.	

DATE	ENGINEERING CERTIFICATION
APR 2020	
DESIGN	
J. LO	
DRAWN	
J. CORDOVA	
CHECKED	
R. NARSIM	
PROJECT ENGINEER	DATE

SANTA CLARA VALLEY WATER DISTRICT



PROJECT NAME AND SHEET DESCRIPTION:

CALABAZAS CREEK REHABILITATION PROJECT

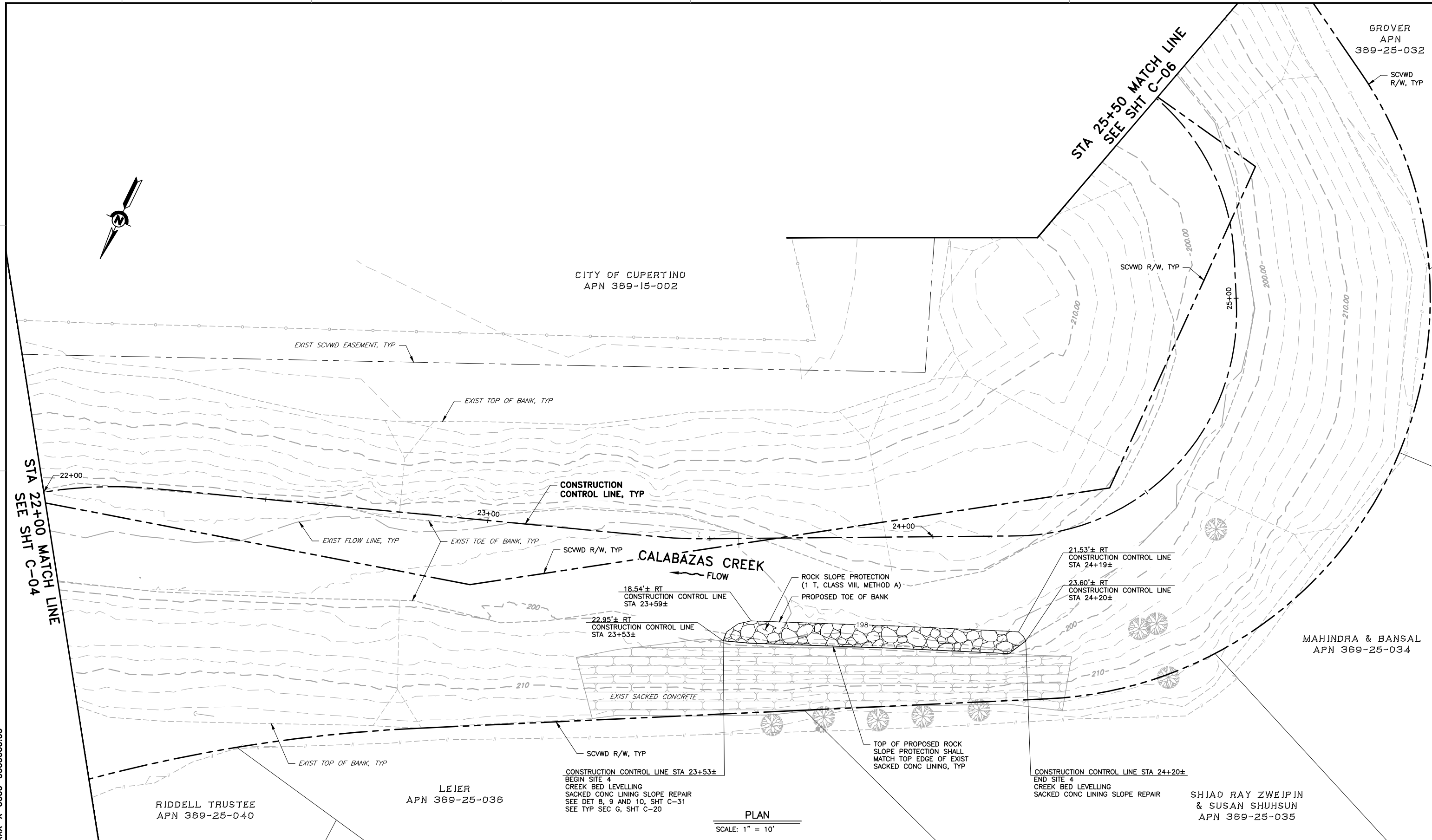
PLAN
STA 19+00 TO STA 22+00

SCALE AS SHOWN	PROJECT NUMBER 62084001
VERIFY SCALES 0 1" BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	SHEET CODE: C-04 SHEET NUMBER: XX OF XXX

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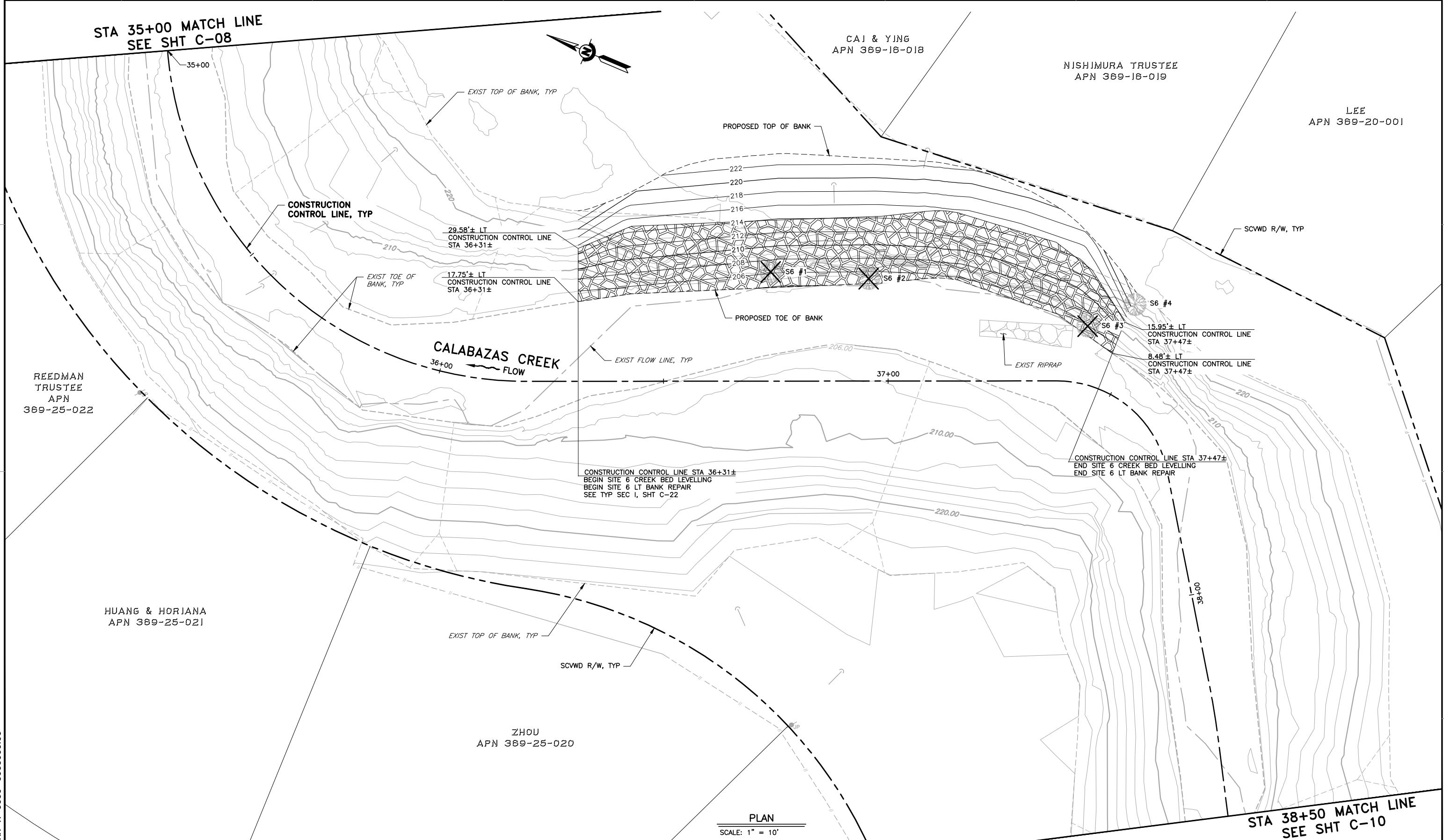
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					R. NARSIM	PROJECT ENGINEER	DATE	STA 22+00 TO STA 25+50		

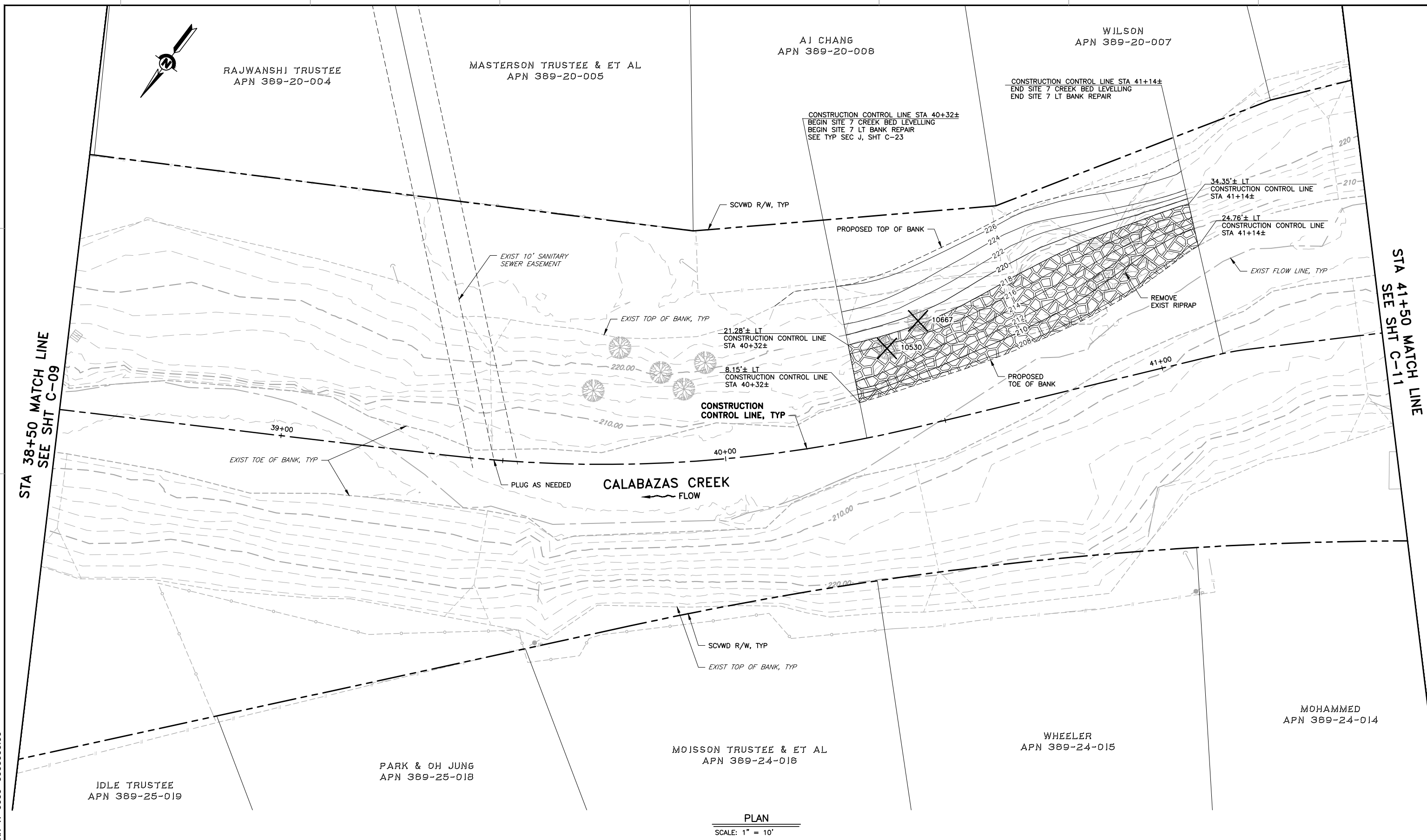
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					R. NARSIM	PROJECT ENGINEER	DATE	PLAN STA 35+00 TO STA 38+50			

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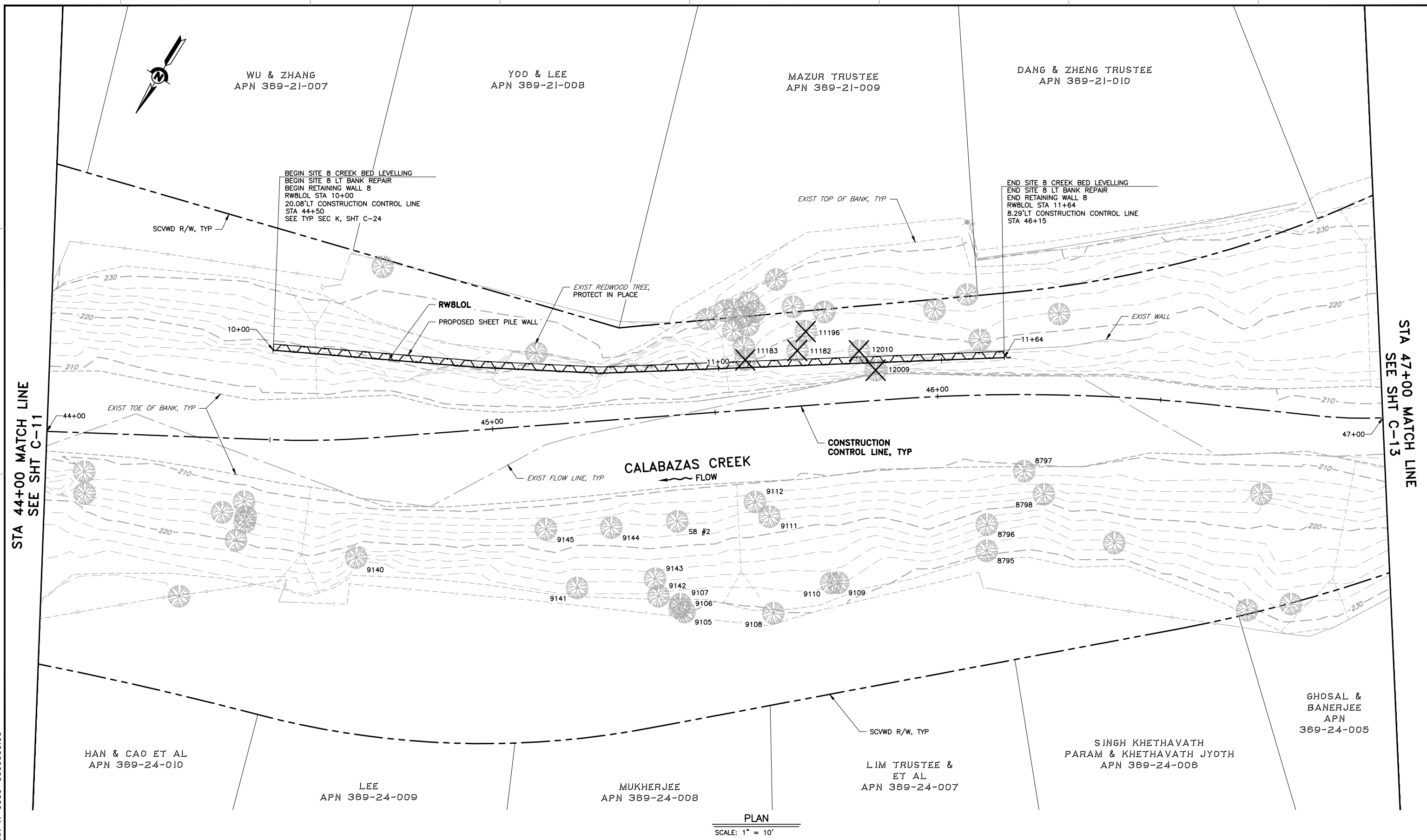


PLAN
SCALE: 1" = 10'

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				1. NOT ALL TREES SHOWN. ONLY TREES NEAR PROPOSED WORK ARE SHOWN AND ARE FOR INFORMATIONAL PURPOSE ONLY. SEE SHEET C-16 FOR TREE REMOVAL TABLES.	APR 2020			CALABAZAS CREEK REHABILITATION PROJECT PLAN STA 38+50 TO STA 41+50		62084001 C-10 SHEET NUMBER: XX OF XXX
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					J. FORD CHECKED					
					R. NARSIM	PROJECT ENGINEER	DATE			

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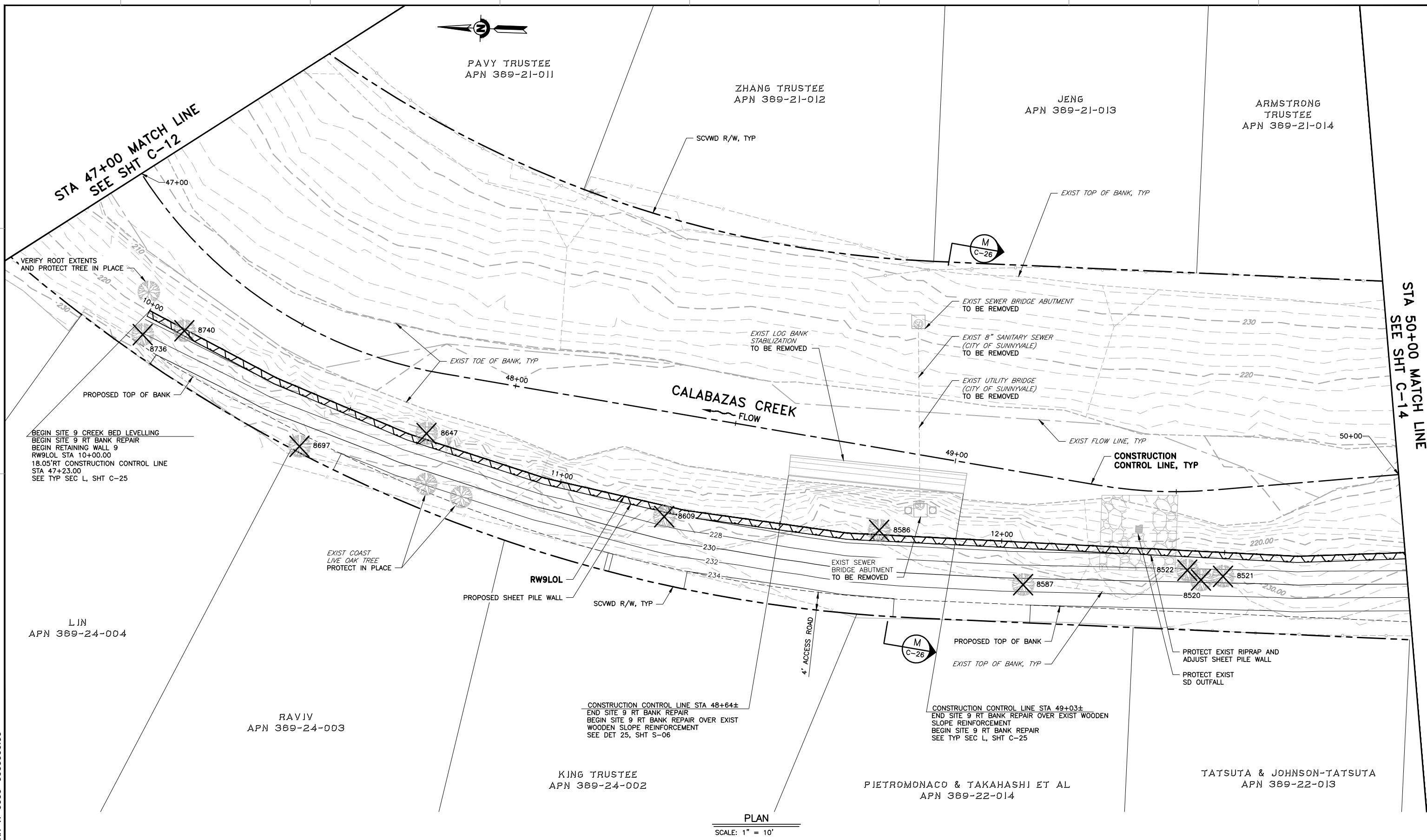


PLAN
SCALE: 1" = 10'

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					J. FORD CHECKED					
					R. NARSIM	PROJECT ENGINEER	DATE		VERIFIED SCALES	SHEET CODE:
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								PLAN STA 44+00 TO STA 47+00		SHEET NUMBER: XX OF XXX

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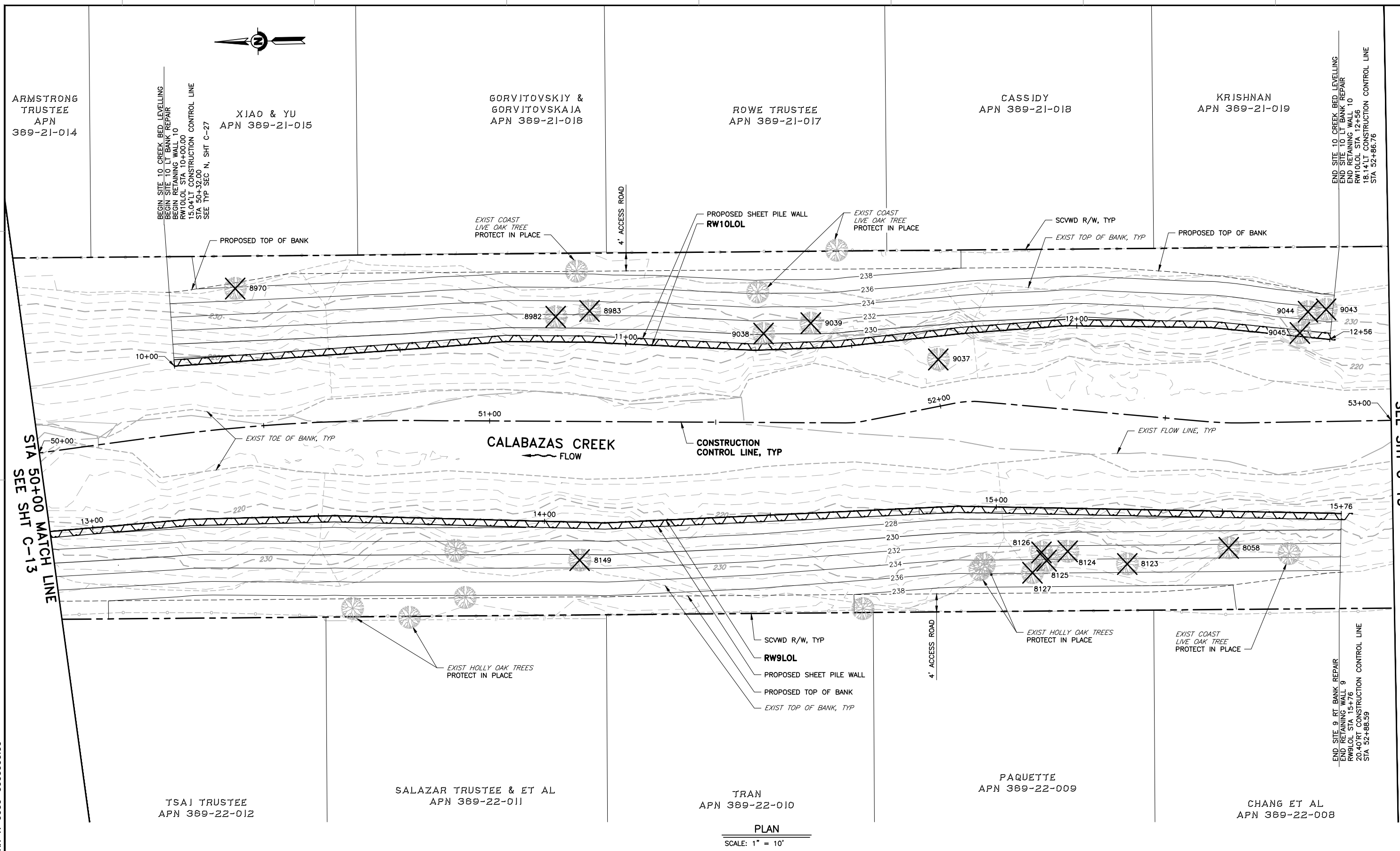


PLAN
SCALE: 1" = 10'

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					CHECKED					
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PLAN
SCALE: 1" = 10'

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				1. NOT ALL TREES SHOWN. ONLY TREES NEAR PROPOSED WORK ARE SHOWN AND ARE FOR INFORMATIONAL PURPOSE ONLY. SEE SHEET C-16 FOR TREE REMOVAL TABLES.	APR 2020			CALABAZAS CREEK REHABILITATION PROJECT	AS SHOWN	62084001
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					CHECKED				BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	SHEET NUMBER:
					R. NARSIM	PROJECT ENGINEER	DATE			XX OF XXX

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2

1
DOCUMENT NUMBER: XXXX-X-0000-00000000.00

REV	DESCRIPTION	DATE	APPR

REFERENCE INFORMATION AND NOTES	
1. NOT ALL TREES SHOWN. ONLY TREES NEAR PROPOSED WORK ARE SHOWN AND ARE FOR INFORMATIONAL PURPOSE ONLY. SEE SHEET C-16 FOR TREE REMOVAL TABLES.	

DATE	ENGINEERING CERTIFICATION	
APR 2020		
DESIGN		
J. LO		
DRAWN		
J. FORD		
CHECKED		
R. NARSIM	PROJECT ENGINEER	DATE

SANTA CLARA VALLEY WATER DISTRICT

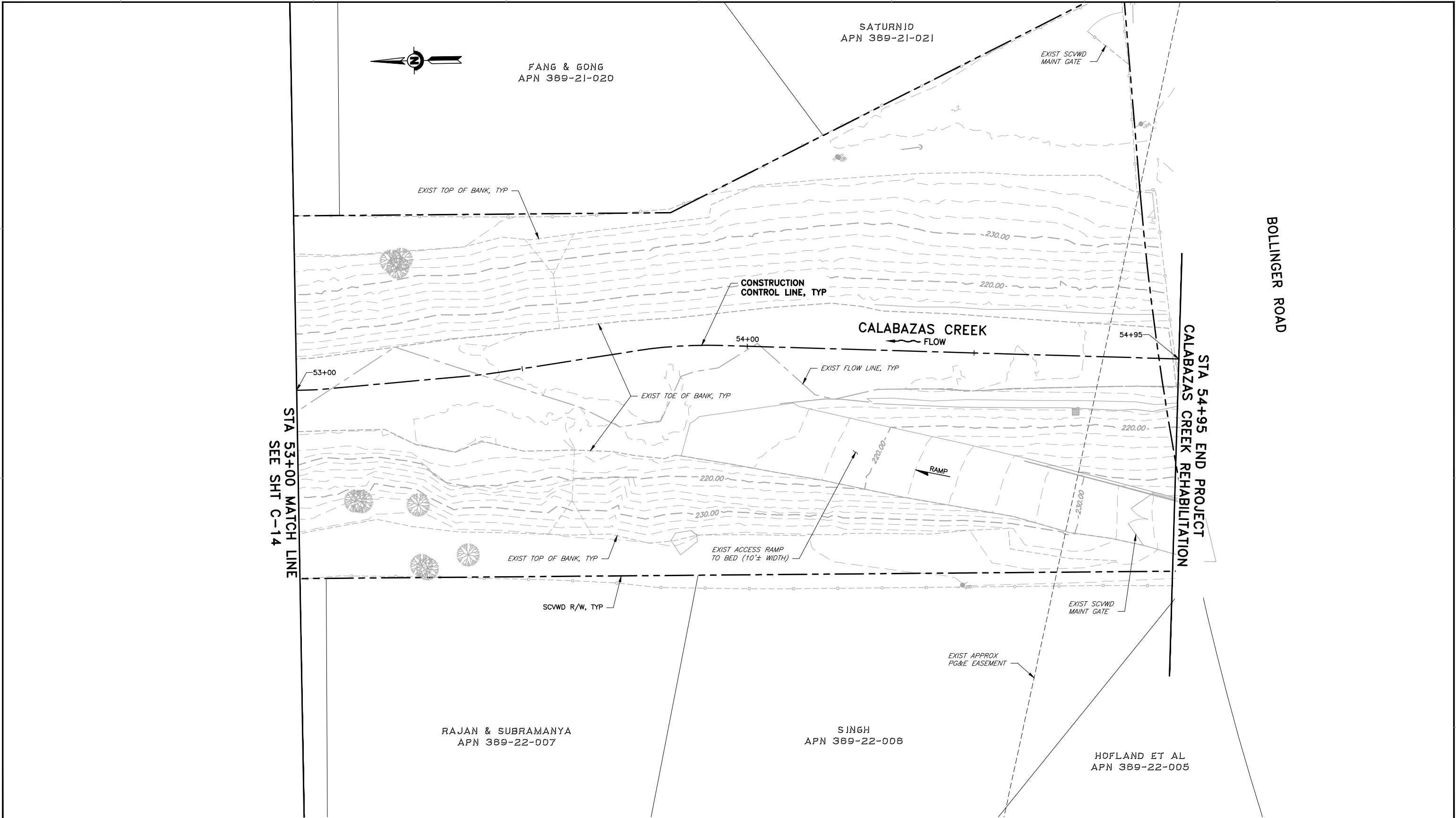
Valley Water

PROJECT NAME AND SHEET DESCRIPTION:

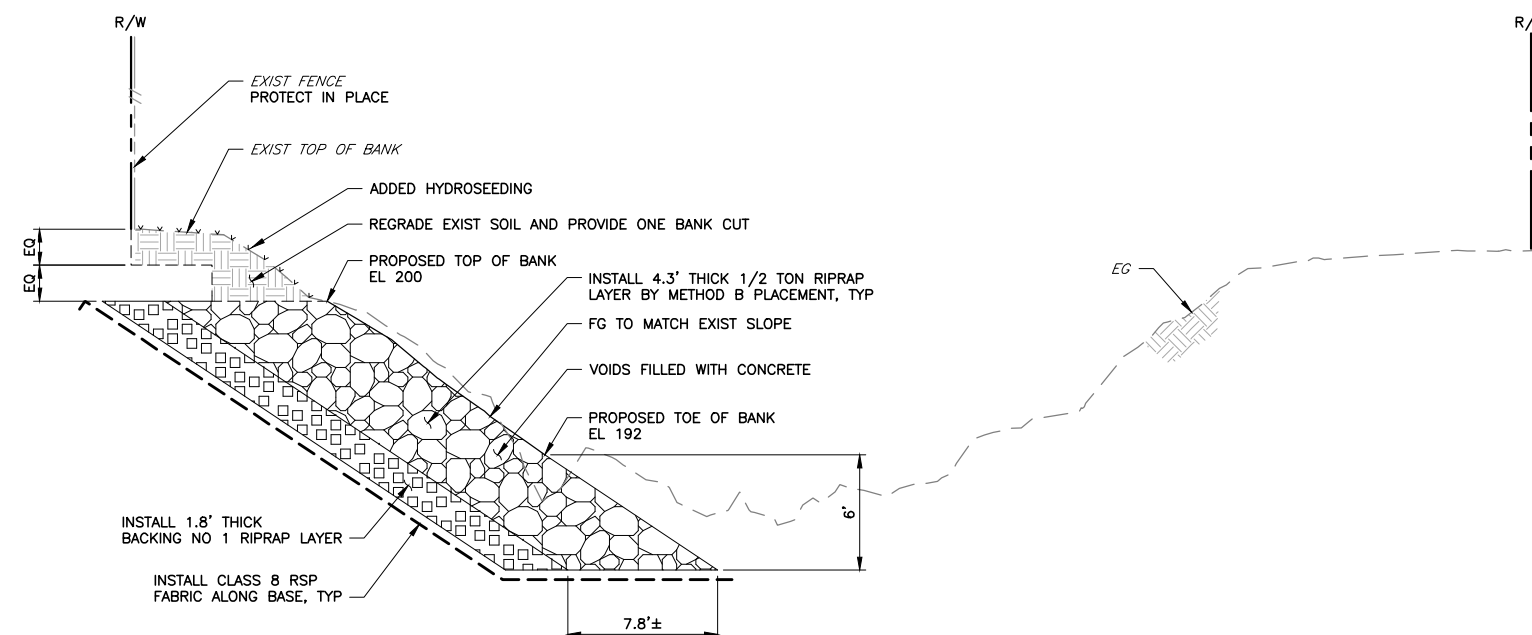
CALABAZAS CREEK
REHABILITATION PROJECT

PLAN
STA 53+00 TO STA 54+95

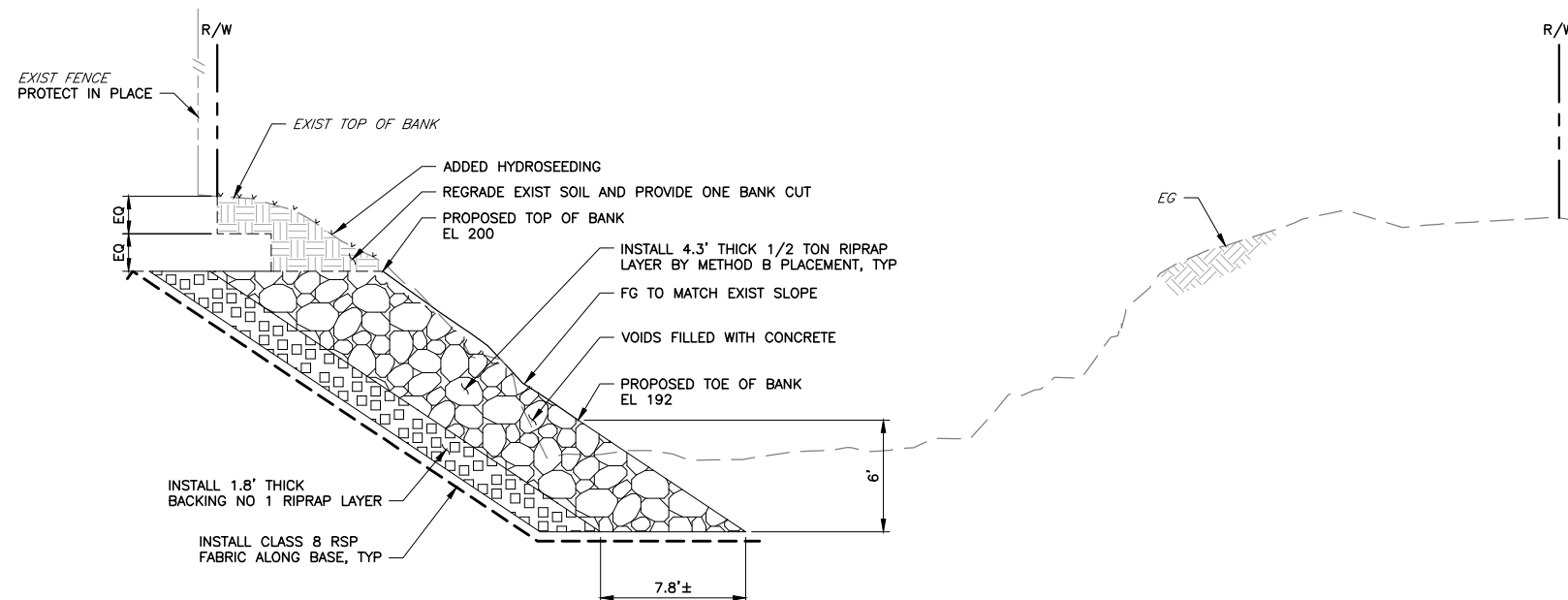
SCALE AS SHOWN	PROJECT NUMBER 62084001
VERIFY SCALES 0 1" BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	SHEET CODE: C-15 SHEET NUMBER: XX OF XXX



PLAN
SCALE: 1" = 10'



TYPICAL SECTION **(A)** **SITE 1 CONSTRUCTION CONTROL LINE**
STA 10+25± TO STA 10+50±
 SCALE: 1" = 5'



TYPICAL SECTION **(B)** **SITE 1 CONSTRUCTION CONTROL LINE**
C-01 **STA 10+50± TO STA 10+60±**
 SCALE: 1" = 5'

- NOTES:**
1. ALL FILLS SHALL BE CONSTRUCTED IN 6" TO 8" LIFTS AND COMPACTED TO A MINIMUM 95% RELATIVE COMPACTION. SLOPES TO RECEIVE FILLS SHALL BE STRIPPED AND BENCHED PRIOR TO RECEIVING FILL, MAXIMUM HEIGHT IS 2' HIGH AT 1H:1V.
 2. ALL TREES WITHIN THE PROJECT LIMITS ARE TO REMAIN, EXCEPT INDICATED ON SITE PLAN.

LEGEND:

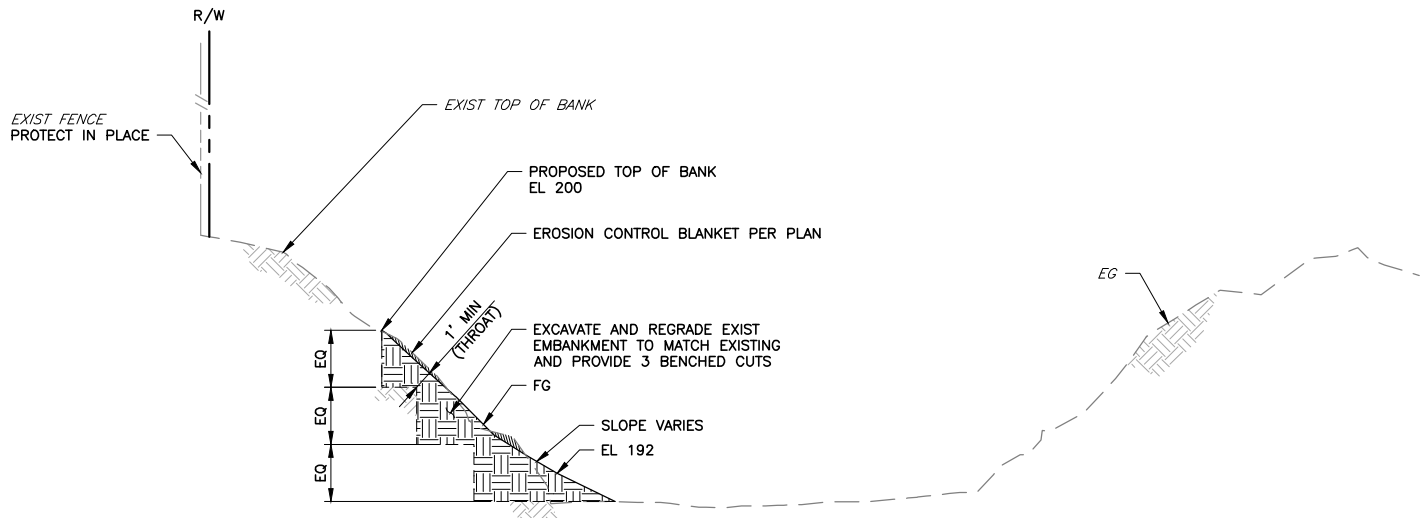
1%	1% FLOOD ELEVATION
- - - - -	NEW GROUNDWORK CUTLINE
=====	NEW SURFACE
— — — — —	GEOTEXTILE FABRIC
	TOPSOIL
	RIPRAP
	NEW FILL
	BACKING NO. 1

DOCUMENT NUMBER: 2	REV	DESCRIPTION	DATE	APPR	REFERENCE INFORMATION AND NOTES	DATE APR 2020	ENGINEERING CERTIFICATION	SANTA CLARA VALLEY WATER DISTRICT	PROJECT NAME AND SHEET DESCRIPTION:	SCALE AS SHOWN	PROJECT NUMBER 62084001
						DESIGN J. LO			CALABAZAS CREEK REHABILITATION PROJECT TYPICAL SECTIONS	VERIFY SCALES	SHEET CODE:
					DRAWN J. FORD					C-17	
					CHECKED	BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY					SHEET NUMBER:
					R. NARSIM						XX OF XXX
						PROJECT ENGINEER	DATE				

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DOCUMENT NUMBER: XXXX-X-0000-00000000.00



TYPICAL SECTION **C** **SITE 1 CONSTRUCTION CONTROL LINE**
C-01 **STA 10+60± TO STA 10+80±**
SCALE: 1" = 5'

- NOTES:**
1. ALL FILLS SHALL BE CONSTRUCTED IN 6" TO 8" LIFTS AND COMPACTED TO A MINIMUM 95% RELATIVE COMPACTION. SLOPES TO RECEIVE FILLS SHALL BE STRIPPED AND BENCHED PRIOR TO RECEIVING FILL, MAXIMUM HEIGHT IS 2' HIGH AT 1H:1V.
 2. ALL TREES WITHIN THE PROJECT LIMITS ARE TO REMAIN, EXCEPT INDICATED ON SITE PLAN.

LEGEND:

1% 1% FLOOD ELEVATION

- - - - - NEW GROUNDWORK CUTLINE

————— NEW SURFACE

- - - - - GEOTEXTILE FABRIC

 TOPSOIL

 RIPRAP

 NEW FILL

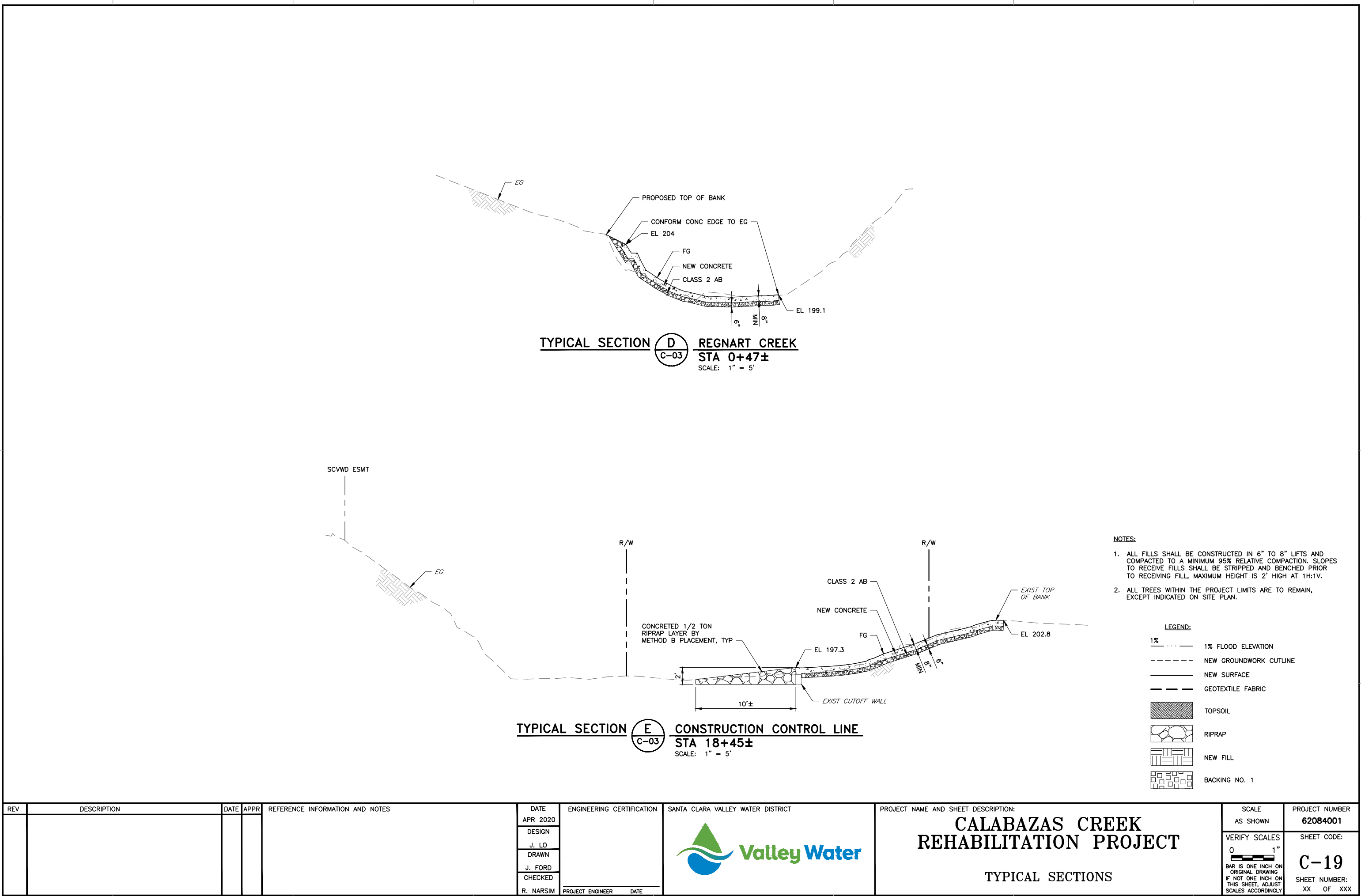
 BACKING NO. 1

REV	DESCRIPTION	DATE	APPR	REFERENCE INFORMATION AND NOTES	DATE	ENGINEERING CERTIFICATION	SANTA CLARA VALLEY WATER DISTRICT	PROJECT NAME AND SHEET DESCRIPTION:	SCALE AS SHOWN	PROJECT NUMBER
					APR 2020			CALABAZAS CREEK REHABILITATION PROJECT TYPICAL SECTIONS	 0 1" BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	62084001
					DESIGN					SHEET CODE:
					J. LO					C-18
					DRAWN					SHEET NUMBER:
					J. FORD					XX OF XXX
					CHECKED					
					R. NARSIM	PROJECT ENGINEER	DATE			

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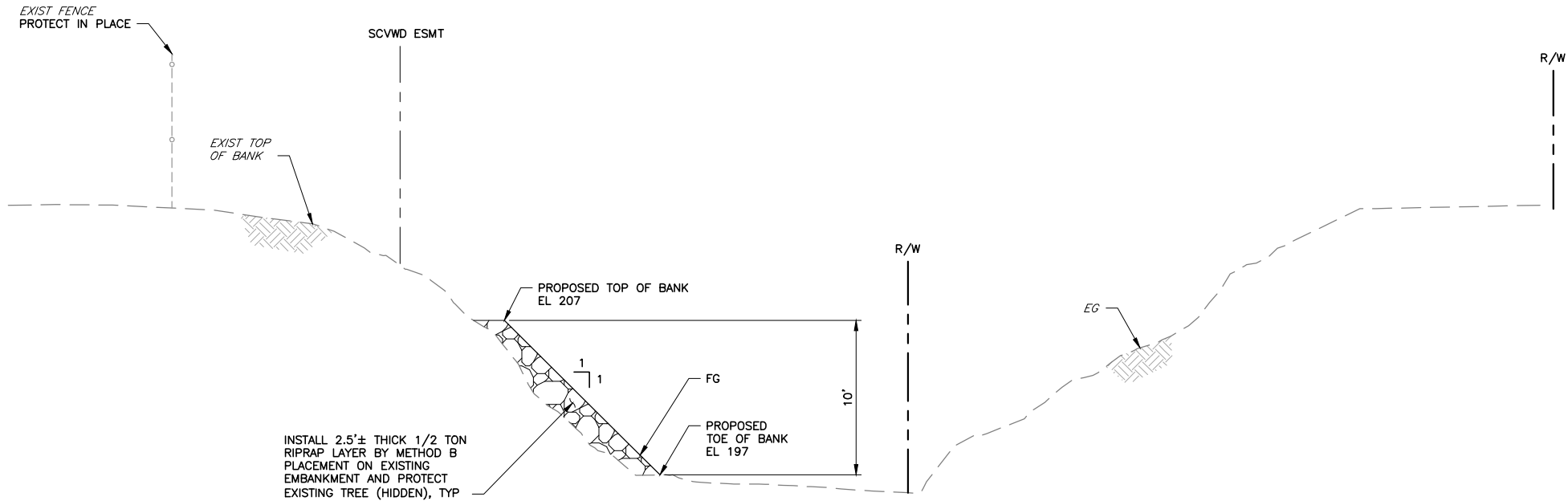


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					R. NARSIM	PROJECT ENGINEER	DATE			

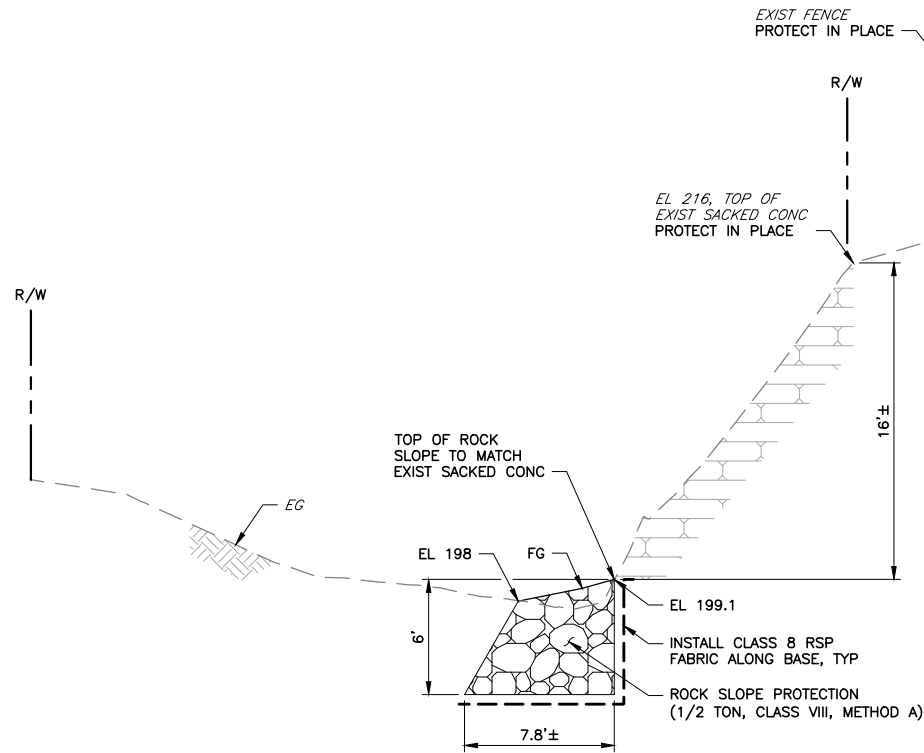
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DOCUMENT NUMBER: XXXX-X-0000-00000000.00



TYPICAL SECTION **F** SITE 3 CONSTRUCTION CONTROL LINE
C-04 STA 19+57± TO STA 19+96±
SCALE: 1" = 5'



TYPICAL SECTION **G** SITE 4 CONSTRUCTION CONTROL LINE
C-05 STA 23+53± TO STA 24+20±
SCALE: 1" = 5'

- NOTES:
1. ALL FILLS SHALL BE CONSTRUCTED IN 6" TO 8" LIFTS AND COMPACTED TO A MINIMUM 95% RELATIVE COMPACTION. SLOPES TO RECEIVE FILLS SHALL BE STRIPPED AND BENCHED PRIOR TO RECEIVING FILL, MAXIMUM HEIGHT IS 2' HIGH AT 1H:1V.
 2. ALL TREES WITHIN THE PROJECT LIMITS ARE TO REMAIN, EXCEPT INDICATED ON SITE PLAN.

LEGEND:	
1%	1% FLOOD ELEVATION
---	NEW GROUNDWORK CUTLINE
---	NEW SURFACE
---	GEOTEXTILE FABRIC
[Pattern]	TOPSOIL
[Pattern]	RIPRAP
[Pattern]	NEW FILL
[Pattern]	BACKING NO. 1

REV	DESCRIPTION	DATE	APPR	REFERENCE INFORMATION AND NOTES

DATE	ENGINEERING CERTIFICATION	SANTA CLARA VALLEY WATER DISTRICT
APR 2020		
DESIGN		
J. LO		
DRAWN		
J. FORD		
CHECKED		
R. NARSIM	PROJECT ENGINEER	DATE

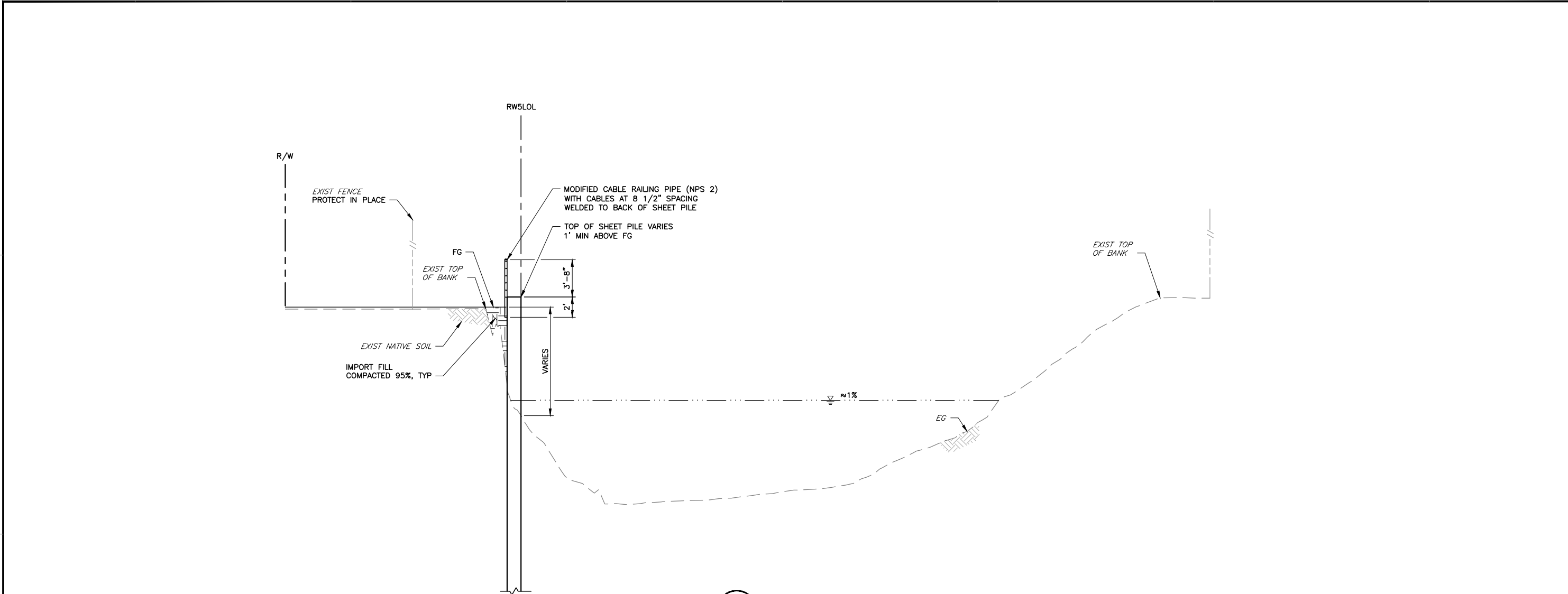


PROJECT NAME AND SHEET DESCRIPTION:		SCALE	PROJECT NUMBER
CALABAZAS CREEK REHABILITATION PROJECT		AS SHOWN	62084001
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TYPICAL SECTIONS		0 1"	C-20
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DOCUMENT NUMBER: XXXX-X-0000-00000000.00



TYPICAL SECTION **H** SITE 5 CONSTRUCTION CONTROL LINE
C-08 STA 33+00± TO STA 34+17±
SCALE: 1" = 5'

- NOTES:
1. ALL FILLS SHALL BE CONSTRUCTED IN 6" TO 8" LIFTS AND COMPACTED TO A MINIMUM 95% RELATIVE COMPACTION. SLOPES TO RECEIVE FILLS SHALL BE STRIPPED AND BENCHED PRIOR TO RECEIVING FILL, MAXIMUM HEIGHT IS 2' HIGH AT 1H:1V.
 2. ALL TREES WITHIN THE PROJECT LIMITS ARE TO REMAIN, EXCEPT INDICATED ON SITE PLAN.

LEGEND:

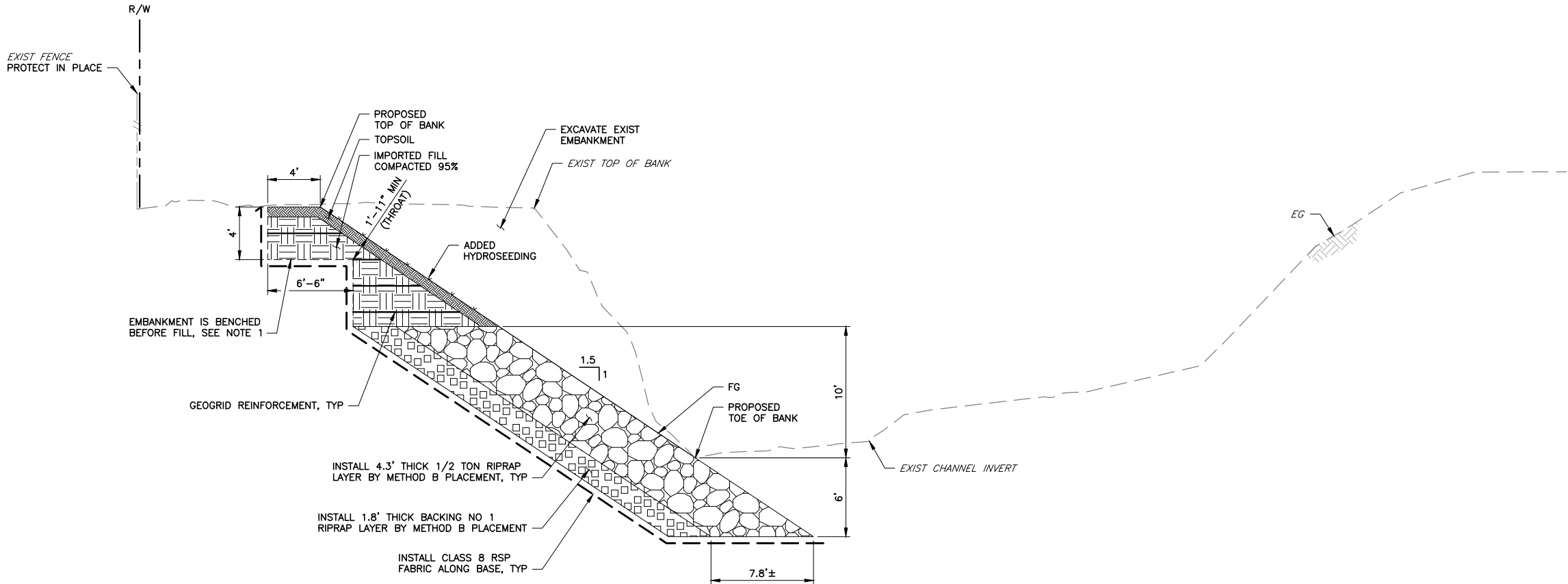
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---	NEW SURFACE
---	GEOTEXTILE FABRIC
[Pattern]	TOPSOIL
[Pattern]	RIPRAP
[Pattern]	NEW FILL
[Pattern]	BACKING NO. 1

REV	DESCRIPTION	DATE	APPR	REFERENCE INFORMATION AND NOTES	DATE	ENGINEERING CERTIFICATION	SANTA CLARA VALLEY WATER DISTRICT	PROJECT NAME AND SHEET DESCRIPTION:	SCALE	PROJECT NUMBER
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					CHECKED					
					R. NARSIM	PROJECT ENGINEER	DATE			

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DOCUMENT NUMBER: XXXX-X-0000-00000000.00



TYPICAL SECTION I SITE 6 CONSTRUCTION CONTROL LINE
C-09 STA 36+31± TO STA 37+47±
SCALE: 1" = 5'

- NOTES:
1. ALL FILLS SHALL BE CONSTRUCTED IN 6" TO 8" LIFTS AND COMPACTED TO A MINIMUM 95% RELATIVE COMPACTION. SLOPES TO RECEIVE FILLS SHALL BE STRIPPED AND BENCHED PRIOR TO RECEIVING FILL, MAXIMUM HEIGHT IS 2' HIGH AT 1H:1V.
 2. ALL TREES WITHIN THE PROJECT LIMITS ARE TO REMAIN, EXCEPT INDICATED ON SITE PLAN.

LEGEND:

1% 1% FLOOD ELEVATION

NEW GROUNDWORK CUTLINE

NEW SURFACE

GEOTEXTILE FABRIC

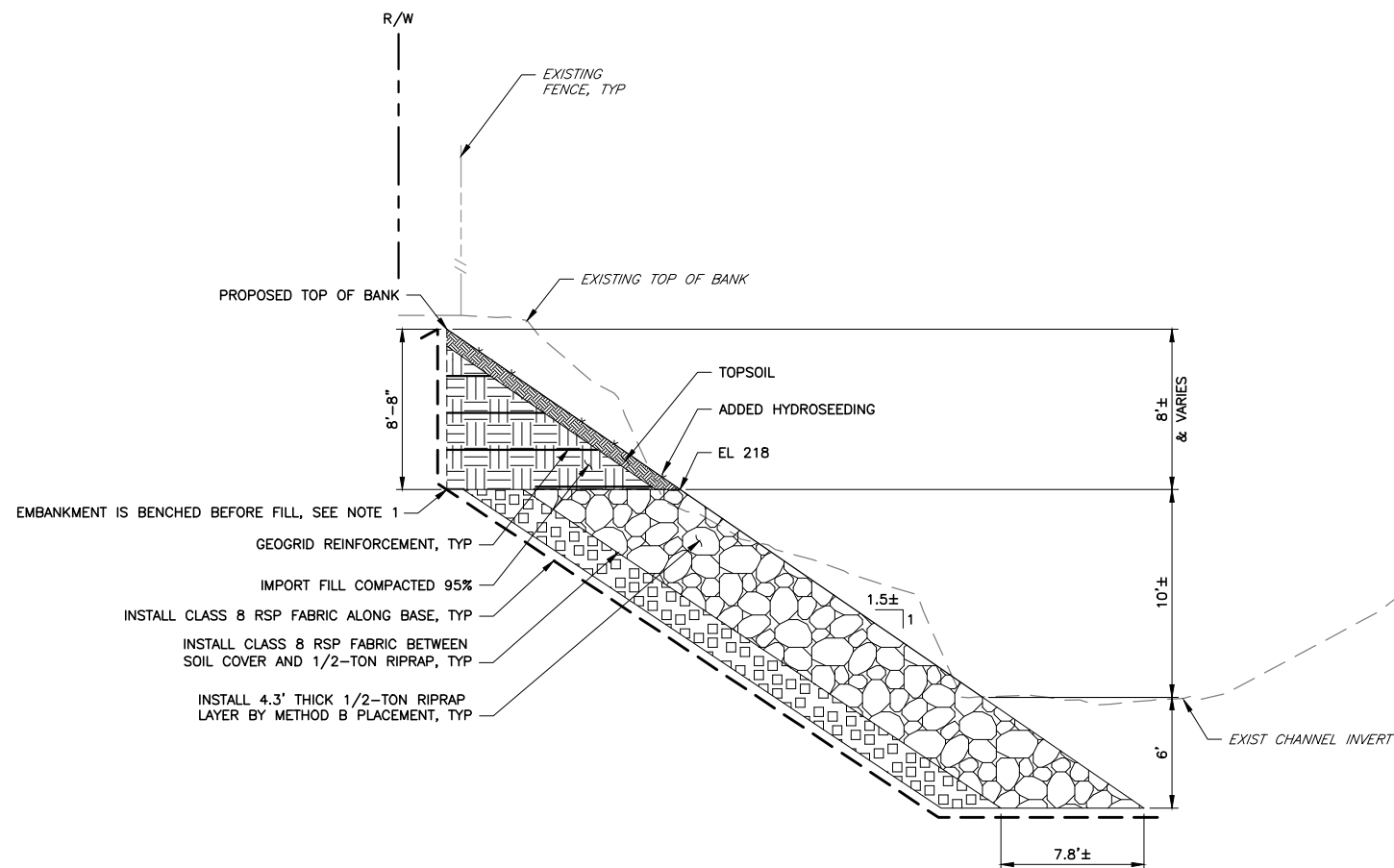
TOPSOIL

RIPRAP

NEW FILL

BACKING NO. 1

REV	DESCRIPTION	DATE	APPR	REFERENCE INFORMATION AND NOTES	DATE	ENGINEERING CERTIFICATION	SANTA CLARA VALLEY WATER DISTRICT	PROJECT NAME AND SHEET DESCRIPTION:	SCALE	PROJECT NUMBER
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					DESIGN				VERIFY SCALES	SHEET CODE:
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					DRAWN				BAR IS ONE INCH ON ORIGINAL DRAWING	SHEET NUMBER:
					J. FORD				IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	XX OF XXX
					CHECKED			TYPICAL SECTIONS		
					R. NARSIM	PROJECT ENGINEER	DATE			



TYPICAL SECTION **SITE 7 CONSTRUCTION CONTROL LINE**
STA 40+32± TO STA 41+14±
 SCALE: 1" = 5'

- NOTES:

1. ALL FILLS SHALL BE CONSTRUCTED IN 6" TO 8" LIFTS AND COMPACTED TO A MINIMUM 95% RELATIVE COMPACTION. SLOPES TO RECEIVE FILLS SHALL BE STRIPPED AND BENCHED PRIOR TO RECEIVING FILL, MAXIMUM HEIGHT IS 2' HIGH AT 1H:1V.
2. ALL TREES WITHIN THE PROJECT LIMITS ARE TO REMAIN, EXCEPT INDICATED ON SITE PLAN.

LEGEND:

- | | |
|---|------------------------|
| 1%
----- | 1% FLOOD ELEVATION |
| ----- | NEW GROUNDWORK CUTLINE |
| ===== | NEW SURFACE |
| ----- | GEOTEXTILE FABRIC |
|  | TOPSOIL |
|  | RIPRAP |
|  | NEW FILL |
|  | BACKING NO. 1 |

REV	DESCRIPTION	DATE	APPR	REFERENCE INFORMATION AND NOTES	DATE APR 2020	ENGINEERING CERTIFICATION	SANTA CLARA VALLEY WATER DISTRICT	PROJECT NAME AND SHEET DESCRIPTION: CALABAZAS CREEK REHABILITATION PROJECT	SCALE AS SHOWN	PROJECT NUMBER 62084001
					DESIGN J. LO DRAWN J. FORD			TYPICAL SECTION	VERIFY SCALES 0 1" BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	SHEET CODE: C-23 SHEET NUMBER: XX OF XXX
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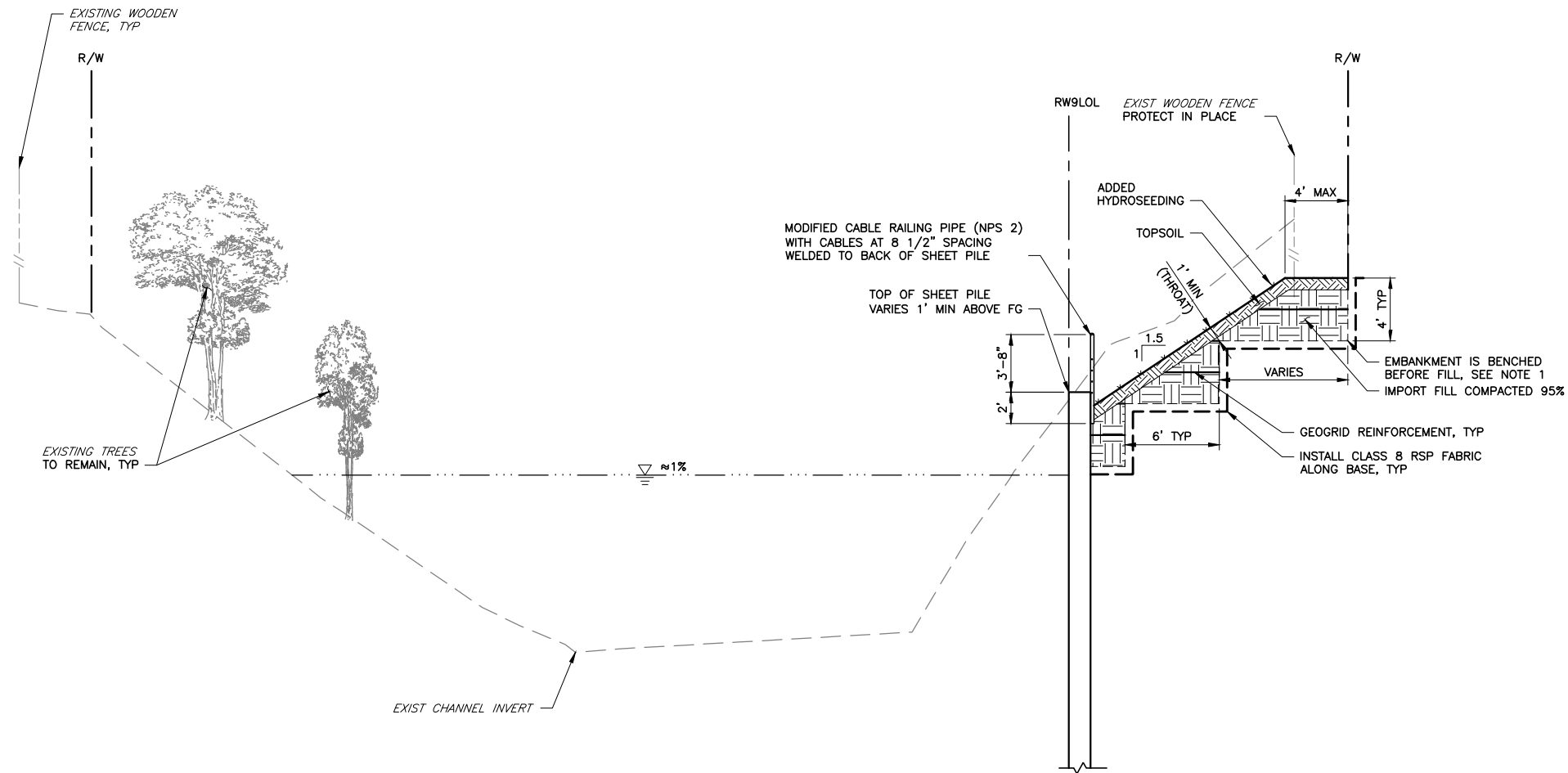
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1



NOTES:

- ALL FILLS SHALL BE CONSTRUCTED IN 6" TO 8" LIFTS AND COMPACTED TO A MINIMUM 95% RELATIVE COMPACTION. SLOPES TO RECEIVE FILLS SHALL BE STRIPPED AND BENCHED PRIOR TO RECEIVING FILL, MAXIMUM HEIGHT IS 2' HIGH AT 1H:1V.
- ALL TREES WITHIN THE PROJECT LIMITS ARE TO REMAIN, EXCEPT INDICATED ON SITE PLAN.

LEGEND:

1%	1% FLOOD ELEVATION
---	NEW GROUNDWORK CUTLINE
---	NEW SURFACE
---	GEOTEXTILE FABRIC
[Pattern]	TOPSOIL
[Pattern]	RIPRAP
[Pattern]	NEW FILL
[Pattern]	BACKING NO. 1

TYPICAL SECTION **L** SITE 9 CONSTRUCTION CONTROL LINE
C-13 STA 47+23± TO STA 50+32±
C-14 SCALE: 1" = 5'

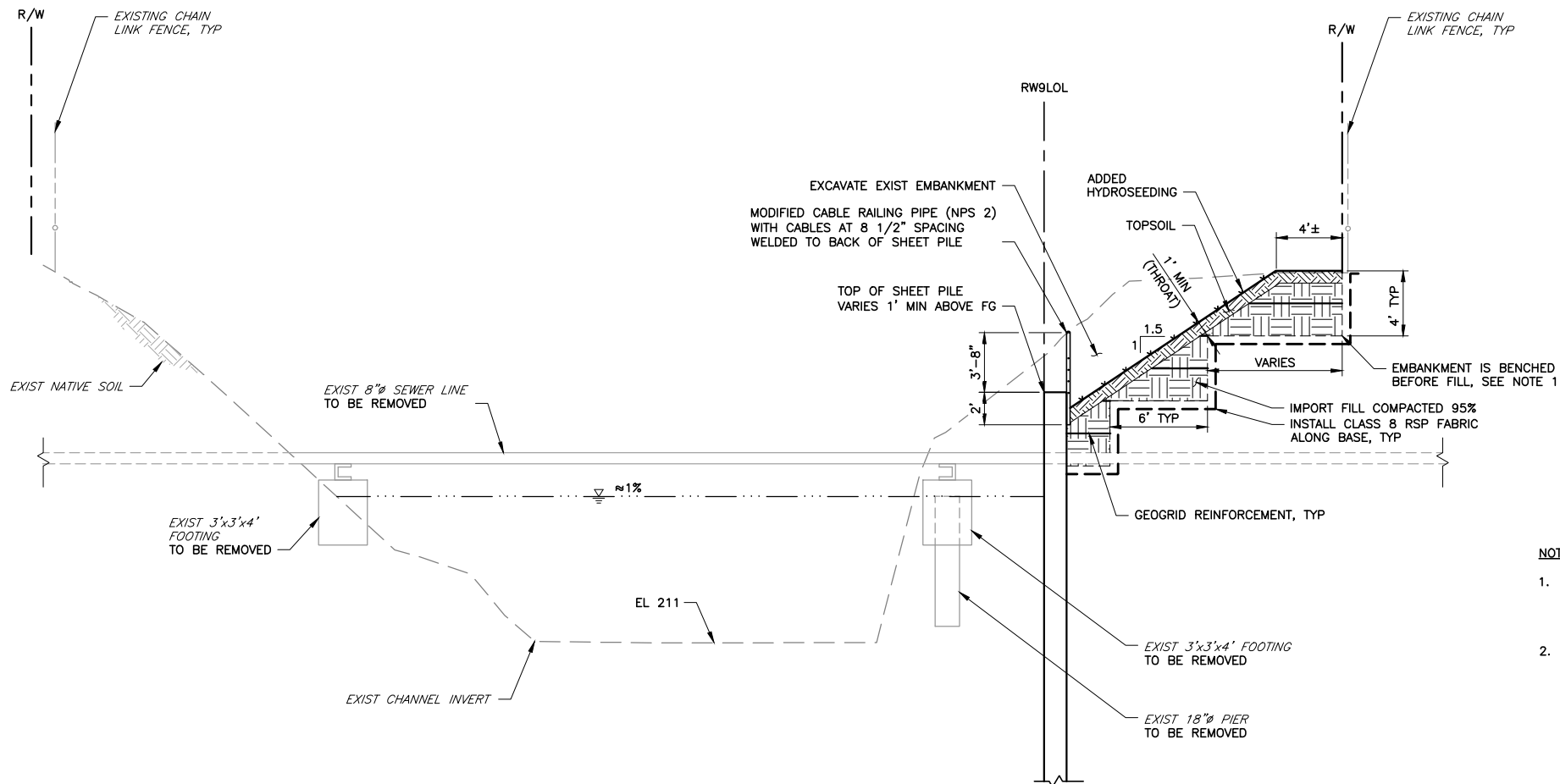
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					J. FORD					
					CHECKED					
					R. NARSIM	PROJECT ENGINEER	DATE			

A B C D E F G H

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DOCUMENT NUMBER: XXXX-X-0000-00000000.00



- NOTES:
1. ALL FILLS SHALL BE CONSTRUCTED IN 6" TO 8" LIFTS AND COMPACTED TO A MINIMUM 95% RELATIVE COMPACTION. SLOPES TO RECEIVE FILLS SHALL BE STRIPPED AND BENCHED PRIOR TO RECEIVING FILL, MAXIMUM HEIGHT IS 2' HIGH AT 1H:1V.
 2. ALL TREES WITHIN THE PROJECT LIMITS ARE TO REMAIN, EXCEPT INDICATED ON SITE PLAN.

- LEGEND:
- 1% FLOOD ELEVATION
 - NEW GROUNDWORK CUTLINE
 - NEW SURFACE
 - GEOTEXTILE FABRIC
 - TOPSOIL
 - RIPRAP
 - NEW FILL
 - BACKING NO. 1

TYPICAL SECTION **M** CONSTRUCTION CONTROL LINE
C-13 STA 48+85± TO STA 48+98±
SCALE: 1" = 5'

REV	DESCRIPTION	DATE	APPR	REFERENCE INFORMATION AND NOTES	DATE	ENGINEERING CERTIFICATION	SANTA CLARA VALLEY WATER DISTRICT	PROJECT NAME AND SHEET DESCRIPTION:	SCALE	PROJECT NUMBER
					APR 2020			CALABAZAS CREEK REHABILITATION PROJECT	AS SHOWN	62084001
					DESIGN				VERIFY SCALES	SHEET CODE:
					J. LO				0 1"	C-26
					DRAWN				BAR IS ONE INCH ON ORIGINAL DRAWING	SHEET NUMBER:
					J. FORD				IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	XX OF XXX
					CHECKED			TYPICAL SECTION		
					R. NARSIM	PROJECT ENGINEER	DATE			



1. ALL FILLS SHALL BE CONSTRUCTED IN 6" TO 8" LIFTS AND COMPACTED TO A MINIMUM 95% RELATIVE COMPACTION. SLOPES TO RECEIVE FILLS SHALL BE STRIPPED AND BENCHED PRIOR TO RECEIVING FILL, MAXIMUM HEIGHT IS 2' HIGH AT 1H:1V.
2. ALL TREES WITHIN THE PROJECT LIMITS ARE TO REMAIN, EXCEPT INDICATED ON SITE PLAN.

N
C-14

STA 50+32± TO STA 52+86±
SCALE: 1" = 5'

LEGEND:

1% 1% FLOOD ELEVATION
- - - - - NEW GROUNDWORK CUTLINE
————— NEW SURFACE
- - - - - GEOTEXTILE FABRIC

	TOPSOIL
	RIPRAP
	NEW FILL
	BACKING NO. 1

REV	DESCRIPTION	DATE	APPR	REFERENCE INFORMATION AND NOTES	DATE APR 2020	ENGINEERING CERTIFICATION	SANTA CLARA VALLEY WATER DISTRICT	PROJECT NAME AND SHEET DESCRIPTION: CALABAZAS CREEK REHABILITATION PROJECT	SCALE AS SHOWN	PROJECT NUMBER 62084001
					DESIGN J. LO	 Valley Water			VERIFY SCALES 0 1" 	SHEET CODE: C-27
					DRAWN J. FORD				BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	SHEET NUMBER: XX OF XXX
					CHECKED					
					R. NARSIM		PROJECT ENGINEER	DATE		

Appendix B

California Emissions Estimator Model Data

Calabazas Creek Bank Rehabilitation Project - Santa Clara County, Annual

Calabazas Creek Bank Rehabilitation Project
Santa Clara County, Annual**1.0 Project Characteristics**

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
	0.00		0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	58
Climate Zone	5			Operational Year	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Calabazas Creek Bank Rehabilitation Project - Santa Clara County, Annual

Project Characteristics -

Land Use -

Construction Phase - Adjusted manually to fit project schedule.

Off-road Equipment - Based on construction details.

Off-road Equipment - Based on construction details.

Off-road Equipment - Based on construction details.

Off-road Equipment - Based on construction details.

Off-road Equipment - Based on construction details.

Off-road Equipment - Based on construction details.

Grading - Based on construction details.

Trips and VMT - Based on construction details.

Construction Off-road Equipment Mitigation -

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Calabazas Creek Bank Rehabilitation Project - Santa Clara County, Annual

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Calabazas Creek Bank Rehabilitation Project - Santa Clara County, Annual

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Calabazas Creek Bank Rehabilitation Project - Santa Clara County, Annual

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tbOffRoadEquipment	LoadFactor	0.73	0.40
tbOffRoadEquipment	LoadFactor	0.74	0.37
tbOffRoadEquipment	LoadFactor	0.38	0.37
tbOffRoadEquipment	LoadFactor	0.40	0.37
tbOffRoadEquipment	LoadFactor	0.50	0.37
tbOffRoadEquipment	LoadFactor	0.56	0.37
tbOffRoadEquipment	LoadFactor	0.48	0.73
tbOffRoadEquipment	LoadFactor	0.37	0.73
tbOffRoadEquipment	LoadFactor	0.37	0.41
tbOffRoadEquipment	LoadFactor	0.38	0.41
tbOffRoadEquipment	LoadFactor	0.38	0.41
tbOffRoadEquipment	LoadFactor	0.38	0.41
tbOffRoadEquipment	LoadFactor	0.38	0.40
tbOffRoadEquipment	LoadFactor	0.42	0.37
tbOffRoadEquipment	LoadFactor	0.38	0.38
tbOffRoadEquipment	LoadFactor	0.41	0.41
tbOffRoadEquipment	LoadFactor	0.38	0.38
tbOffRoadEquipment	LoadFactor	0.37	0.37
tbOffRoadEquipment	LoadFactor	0.29	0.29
tbOffRoadEquipment	LoadFactor	0.38	0.38
tbOffRoadEquipment	LoadFactor	0.78	0.50
tbOffRoadEquipment	LoadFactor	0.20	0.20
tbOffRoadEquipment	LoadFactor	0.38	0.38
tbOffRoadEquipment	LoadFactor	0.20	0.20

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tbloffRoadEquipment	LoadFactor	0.41	0.41
tbloffRoadEquipment	LoadFactor	0.38	0.38
tbloffRoadEquipment	LoadFactor	0.37	0.37
tbloffRoadEquipment	LoadFactor	0.42	0.42
tbloffRoadEquipment	LoadFactor	0.20	0.20
tbloffRoadEquipment	LoadFactor	0.38	0.38
tbloffRoadEquipment	OffRoadEquipmentType	Air Compressors	Off-Highway Trucks
tbloffRoadEquipment	OffRoadEquipmentType	Cement and Mortar Mixers	Air Compressors
tbloffRoadEquipment	OffRoadEquipmentType	Concrete/Industrial Saws	Air Compressors
tbloffRoadEquipment	OffRoadEquipmentType	Concrete/Industrial Saws	Off-Highway Trucks
tbloffRoadEquipment	OffRoadEquipmentType	Cranes	Air Compressors
tbloffRoadEquipment	OffRoadEquipmentType	Forklifts	Rubber Tired Loaders
tbloffRoadEquipment	OffRoadEquipmentType	Rollers	Cranes
tbloffRoadEquipment	OffRoadEquipmentType	Rubber Tired Dozers	Concrete/Industrial Saws
tbloffRoadEquipment	OffRoadEquipmentType	Rubber Tired Dozers	Other Material Handling Equipment
tbloffRoadEquipment	OffRoadEquipmentType	Tractors/Loaders/Backhoes	Generator Sets
tbloffRoadEquipment	OffRoadEquipmentType	Tractors/Loaders/Backhoes	Off-Highway Trucks
tbloffRoadEquipment	OffRoadEquipmentType	Tractors/Loaders/Backhoes	Other Material Handling Equipment
tbloffRoadEquipment	OffRoadEquipmentType	Tractors/Loaders/Backhoes	Bore/Drill Rigs
tbloffRoadEquipment	OffRoadEquipmentType	Tractors/Loaders/Backhoes	Cement and Mortar Mixers
tbloffRoadEquipment	OffRoadEquipmentType	Concrete/Industrial Saws	Air Compressors
tbloffRoadEquipment	OffRoadEquipmentType	Graders	Off-Highway Trucks
tbloffRoadEquipment	OffRoadEquipmentType	Graders	Excavators
tbloffRoadEquipment	OffRoadEquipmentType	Graders	Off-Highway Trucks
tbloffRoadEquipment	OffRoadEquipmentType	Rubber Tired Dozers	Excavators
tbloffRoadEquipment	OffRoadEquipmentType	Tractors/Loaders/Backhoes	Other Construction Equipment
tbloffRoadEquipment	OffRoadEquipmentType		Excavators

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tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Cranes
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Crushing/Proc. Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	1.00	6.00
tblOffRoadEquipment	UsageHours	1.00	6.00
tblOffRoadEquipment	UsageHours	8.00	1.00
tblOffRoadEquipment	UsageHours	8.00	1.00
tblTripsAndVMT	HaulingTripNumber	285.00	22.00
tblTripsAndVMT	HaulingTripNumber	285.00	765.00

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tblTripsAndVMT	HaulingTripNumber	0.00	22.00
tblTripsAndVMT	HaulingTripNumber	285.00	22.00
tblTripsAndVMT	HaulingTripNumber	285.00	765.00
tblTripsAndVMT	HaulingTripNumber	0.00	22.00
tblTripsAndVMT	WorkerTripNumber	33.00	6.00
tblTripsAndVMT	WorkerTripNumber	25.00	10.00
tblTripsAndVMT	WorkerTripNumber	15.00	6.00
tblTripsAndVMT	WorkerTripNumber	30.00	6.00
tblTripsAndVMT	WorkerTripNumber	28.00	10.00
tblTripsAndVMT	WorkerTripNumber	15.00	6.00

2.0 Emissions Summary

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2.1 Overall Construction**Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1186	1.2204	0.7815	2.1900e-003	0.1230	0.0509	0.1738	0.0655	0.0478	0.1133	0.0000	194.8679	194.8679	0.0412	0.0000	195.8966
2022	0.0838	0.8399	0.7806	1.6700e-003	0.1107	0.0391	0.1499	0.0645	0.0366	0.1012	0.0000	148.3809	148.3809	0.0313	0.0000	149.1626
Maximum	0.1186	1.2204	0.7815	2.1900e-003	0.1230	0.0509	0.1738	0.0655	0.0478	0.1133	0.0000	194.8679	194.8679	0.0412	0.0000	195.8966

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1186	1.2204	0.7815	2.1900e-003	0.0619	0.0509	0.1128	0.0313	0.0478	0.0791	0.0000	194.8677	194.8677	0.0412	0.0000	195.8964
2022	0.0838	0.8399	0.7806	1.6700e-003	0.0557	0.0391	0.0948	0.0306	0.0366	0.0672	0.0000	148.3808	148.3808	0.0313	0.0000	149.1625
Maximum	0.1186	1.2204	0.7815	2.1900e-003	0.0619	0.0509	0.1128	0.0313	0.0478	0.0791	0.0000	194.8677	194.8677	0.0412	0.0000	195.8964

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	49.68	0.00	35.87	52.41	0.00	31.78	0.00	0.00	0.00	0.00	0.00	0.00

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Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	4-15-2021	7-14-2021	0.6471	0.6471
2	7-15-2021	10-14-2021	0.6761	0.6761
3	10-15-2021	1-14-2022	0.0033	0.0033
5	4-15-2022	7-14-2022	0.5295	0.5295
6	7-15-2022	9-30-2022	0.3945	0.3945
		Highest	0.6761	0.6761

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2.2 Overall Operational

Unmitigated Operational

[illegible]

Mitigated Operational

[illegible][illegible]

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3.0 Construction Detail**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Prep - Year 1	Site Preparation	4/15/2021	5/14/2021	5	22	
2	Bank Rehab - Year 1	Grading	5/15/2021	9/10/2021	5	85	
3	Site Restoration - Year 1	Site Preparation	9/15/2021	10/15/2021	5	23	
4	Site Prep - Year 2	Site Preparation	4/15/2022	5/13/2022	5	21	
5	Bank Rehab - Year 2	Grading	5/15/2022	9/12/2022	5	86	
6	Site Restoration - Year 2	Site Preparation	9/15/2021	10/14/2021	5	22	

Acres of Grading (Site Preparation Phase): 0**Acres of Grading (Grading Phase): 0****Acres of Paving: 0****Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)****OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Prep - Year 2	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Restoration - Year 2	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Restoration - Year 2	Off-Highway Trucks	3	8.00	78	0.48
Bank Rehab - Year 2	Air Compressors	1	2.00	9	0.56
Site Prep - Year 1	Air Compressors	1	3.00	81	0.73
Site Restoration - Year 1	Off-Highway Trucks	3	8.00	81	0.73
Site Prep - Year 2	Air Compressors	1	3.00	231	0.29

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Site Prep - Year 2	Rubber Tired Loaders	1	8.00	89	0.20
Bank Rehab - Year 1	Tractors/Loaders/Backhoes	1	6.00	187	0.41
Bank Rehab - Year 2	Rubber Tired Dozers	1	6.00	130	0.42
Bank Rehab - Year 2	Cranes	2	2.00	80	0.38
Site Prep - Year 1	Concrete/Industrial Saws	1	1.00	247	0.40
Site Restoration - Year 1	Other Material Handling Equipment			247	0.40
Site Prep - Year 2	Generator Sets	2	1.00	97	0.37
Site Prep - Year 1	Off-Highway Trucks	2	8.00	97	0.37
Site Restoration - Year 1	Other Material Handling Equipment			97	0.37
Bank Rehab - Year 2	Bore/Drill Rigs	2	4.00	97	0.37
Bank Rehab - Year 1	Cement and Mortar Mixers	1	1.00	97	0.37
Bank Rehab - Year 1	Air Compressors	1	2.00	81	0.73
Bank Rehab - Year 2	Tractors/Loaders/Backhoes	1	6.00	81	0.73
Site Prep - Year 1	Tractors/Loaders/Backhoes	1	8.00	187	0.41
Site Restoration - Year 1	Off-Highway Trucks	1	1.00	187	0.41
Site Prep - Year 2	Excavators	1	8.00	187	0.41
Site Restoration - Year 2	Off-Highway Trucks	1	1.00	187	0.41
Bank Rehab - Year 1	Rubber Tired Dozers	1	6.00	247	0.40
Bank Rehab - Year 2	Excavators	1	4.00	247	0.40
Site Restoration - Year 2	Other Construction Equipment			97	0.37
Site Prep - Year 1	Excavators	1	8.00	158	0.38
Site Prep - Year 1	Generator Sets	2	1.00	84	0.74
Site Prep - Year 1	Graders	1	1.00	187	0.41
Site Prep - Year 1	Pumps	2	1.00	84	0.74
Site Prep - Year 1	Rollers	1	8.00	80	0.38
Site Prep - Year 1	Skid Steer Loaders	1	8.00	65	0.37
Site Prep - Year 1	Generator Sets			84	0.74

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Bank Rehab - Year 1	Cranes			231	0.29
Bank Rehab - Year 1	Excavators	1	4.00	402	0.38
Bank Rehab - Year 1	Crushing/Proc. Equipment	2	1.00	221	0.50
Bank Rehab - Year 1	Forklifts	1	6.00	89	0.20
Bank Rehab - Year 1	Off-Highway Trucks	1	1.00	402	0.38
Site Prep - Year 2	Forklifts	1	8.00	89	0.20
Site Prep - Year 2	Graders	1	1.00	187	0.41
Site Prep - Year 2	Pumps	2	1.00	84	0.74
Site Prep - Year 2	Rollers	1	8.00	80	0.38
Site Prep - Year 2	Skid Steer Loaders	1	8.00	65	0.37
Site Prep - Year 2	Other Construction Equipment			172	0.42
Bank Rehab - Year 2	Forklifts	1	6.00	89	0.20
Bank Rehab - Year 2	Off-Highway Trucks	1	1.00	402	0.38
Bank Rehab - Year 1	Concrete/Industrial Saws	1	8.00	81	0.73
Bank Rehab - Year 2	Concrete/Industrial Saws	1	8.00	81	0.73
Site Restoration - Year 1	Graders	1	8.00	187	0.41
Site Restoration - Year 2	Graders	1	8.00	187	0.41
Site Restoration - Year 1	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

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Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Prep - Year 1	13	6.00	0.00	22.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Bank Rehab - Year 1	10	10.00	0.00	765.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Restoration - Year 1	6	6.00	0.00	22.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Prep - Year 2	12	6.00	0.00	22.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Bank Rehab - Year 2	11	10.00	0.00	765.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Restoration - Year 2	6	6.00	0.00	22.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

3.2 Site Prep - Year 1 - 2021**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.4000e-003	0.0000	4.4000e-003	1.1100e-003	0.0000	1.1100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0131	0.1299	0.1281	2.5000e-004		6.0900e-003	6.0900e-003		5.7500e-003	5.7500e-003	0.0000	21.9838	21.9838	5.7000e-003	0.0000	22.1264
Total	0.0131	0.1299	0.1281	2.5000e-004	4.4000e-003	6.0900e-003	0.0105	1.1100e-003	5.7500e-003	6.8600e-003	0.0000	21.9838	21.9838	5.7000e-003	0.0000	22.1264

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3.2 Site Prep - Year 1 - 2021**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.0000e-005	2.9400e-003	6.4000e-004	1.0000e-005	1.9000e-004	1.0000e-005	2.0000e-004	5.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.8283	0.8283	4.0000e-005	0.0000	0.8293
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-004	1.4000e-004	1.5100e-003	0.0000	5.2000e-004	0.0000	5.3000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.4333	0.4333	1.0000e-005	0.0000	0.4336
Total	2.9000e-004	3.0800e-003	2.1500e-003	1.0000e-005	7.1000e-004	1.0000e-005	7.3000e-004	1.9000e-004	1.0000e-005	2.0000e-004	0.0000	1.2617	1.2617	5.0000e-005	0.0000	1.2628

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.9800e-003	0.0000	1.9800e-003	5.0000e-004	0.0000	5.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0131	0.1299	0.1281	2.5000e-004		6.0900e-003	6.0900e-003		5.7500e-003	5.7500e-003	0.0000	21.9838	21.9838	5.7000e-003	0.0000	22.1264
Total	0.0131	0.1299	0.1281	2.5000e-004	1.9800e-003	6.0900e-003	8.0700e-003	5.0000e-004	5.7500e-003	6.2500e-003	0.0000	21.9838	21.9838	5.7000e-003	0.0000	22.1264

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3.2 Site Prep - Year 1 - 2021**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.0000e-005	2.9400e-003	6.4000e-004	1.0000e-005	1.9000e-004	1.0000e-005	2.0000e-004	5.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.8283	0.8283	4.0000e-005	0.0000	0.8293
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-004	1.4000e-004	1.5100e-003	0.0000	5.2000e-004	0.0000	5.3000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.4333	0.4333	1.0000e-005	0.0000	0.4336
Total	2.9000e-004	3.0800e-003	2.1500e-003	1.0000e-005	7.1000e-004	1.0000e-005	7.3000e-004	1.9000e-004	1.0000e-005	2.0000e-004	0.0000	1.2617	1.2617	5.0000e-005	0.0000	1.2628

3.3 Bank Rehab - Year 1 - 2021**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0946	0.0000	0.0946	0.0599	0.0000	0.0599	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0849	0.7941	0.5192	1.3400e-003		0.0374	0.0374		0.0352	0.0352	0.0000	116.6237	116.6237	0.0272	0.0000	117.3033
Total	0.0849	0.7941	0.5192	1.3400e-003	0.0946	0.0374	0.1320	0.0599	0.0352	0.0951	0.0000	116.6237	116.6237	0.0272	0.0000	117.3033

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3.3 Bank Rehab - Year 1 - 2021**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.0000e-003	0.1023	0.0223	3.0000e-004	6.4800e-003	3.2000e-004	6.8000e-003	1.7800e-003	3.1000e-004	2.0900e-003	0.0000	28.8035	28.8035	1.3100e-003	0.0000	28.8362
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3100e-003	9.1000e-004	9.7200e-003	3.0000e-005	3.3700e-003	2.0000e-005	3.3900e-003	9.0000e-004	2.0000e-005	9.2000e-004	0.0000	2.7903	2.7903	6.0000e-005	0.0000	2.7919
Total	4.3100e-003	0.1032	0.0320	3.3000e-004	9.8500e-003	3.4000e-004	0.0102	2.6800e-003	3.3000e-004	3.0100e-003	0.0000	31.5938	31.5938	1.3700e-003	0.0000	31.6281

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0426	0.0000	0.0426	0.0269	0.0000	0.0269	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0849	0.7941	0.5192	1.3400e-003		0.0374	0.0374		0.0352	0.0352	0.0000	116.6235	116.6235	0.0272	0.0000	117.3031
Total	0.0849	0.7941	0.5192	1.3400e-003	0.0426	0.0374	0.0799	0.0269	0.0352	0.0621	0.0000	116.6235	116.6235	0.0272	0.0000	117.3031

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3.3 Bank Rehab - Year 1 - 2021**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.0000e-003	0.1023	0.0223	3.0000e-004	6.4800e-003	3.2000e-004	6.8000e-003	1.7800e-003	3.1000e-004	2.0900e-003	0.0000	28.8035	28.8035	1.3100e-003	0.0000	28.8362
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3100e-003	9.1000e-004	9.7200e-003	3.0000e-005	3.3700e-003	2.0000e-005	3.3900e-003	9.0000e-004	2.0000e-005	9.2000e-004	0.0000	2.7903	2.7903	6.0000e-005	0.0000	2.7919
Total	4.3100e-003	0.1032	0.0320	3.3000e-004	9.8500e-003	3.4000e-004	0.0102	2.6800e-003	3.3000e-004	3.0100e-003	0.0000	31.5938	31.5938	1.3700e-003	0.0000	31.6281

3.4 Site Restoration - Year 1 - 2021**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					6.1000e-003	0.0000	6.1000e-003	6.6000e-004	0.0000	6.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.8500e-003	0.0940	0.0489	1.2000e-004		3.6000e-003	3.6000e-003		3.3200e-003	3.3200e-003	0.0000	10.6628	10.6628	3.4500e-003	0.0000	10.7490
Total	7.8500e-003	0.0940	0.0489	1.2000e-004	6.1000e-003	3.6000e-003	9.7000e-003	6.6000e-004	3.3200e-003	3.9800e-003	0.0000	10.6628	10.6628	3.4500e-003	0.0000	10.7490

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3.4 Site Restoration - Year 1 - 2021**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.0000e-005	2.9400e-003	6.4000e-004	1.0000e-005	1.9000e-004	1.0000e-005	2.0000e-004	5.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.8283	0.8283	4.0000e-005	0.0000	0.8293
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1000e-004	1.5000e-004	1.5800e-003	1.0000e-005	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4530	0.4530	1.0000e-005	0.0000	0.4533
Total	3.0000e-004	3.0900e-003	2.2200e-003	2.0000e-005	7.4000e-004	1.0000e-005	7.5000e-004	2.0000e-004	1.0000e-005	2.1000e-004	0.0000	1.2814	1.2814	5.0000e-005	0.0000	1.2826

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7400e-003	0.0000	2.7400e-003	3.0000e-004	0.0000	3.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.8500e-003	0.0940	0.0489	1.2000e-004		3.6000e-003	3.6000e-003		3.3200e-003	3.3200e-003	0.0000	10.6628	10.6628	3.4500e-003	0.0000	10.7490
Total	7.8500e-003	0.0940	0.0489	1.2000e-004	2.7400e-003	3.6000e-003	6.3400e-003	3.0000e-004	3.3200e-003	3.6200e-003	0.0000	10.6628	10.6628	3.4500e-003	0.0000	10.7490

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3.4 Site Restoration - Year 1 - 2021**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.0000e-005	2.9400e-003	6.4000e-004	1.0000e-005	1.9000e-004	1.0000e-005	2.0000e-004	5.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.8283	0.8283	4.0000e-005	0.0000	0.8293
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1000e-004	1.5000e-004	1.5800e-003	1.0000e-005	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4530	0.4530	1.0000e-005	0.0000	0.4533
Total	3.0000e-004	3.0900e-003	2.2200e-003	2.0000e-005	7.4000e-004	1.0000e-005	7.5000e-004	2.0000e-004	1.0000e-005	2.1000e-004	0.0000	1.2814	1.2814	5.0000e-005	0.0000	1.2826

3.5 Site Prep - Year 2 - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.4000e-003	0.0000	4.4000e-003	1.1100e-003	0.0000	1.1100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0121	0.1151	0.1204	2.5000e-004		5.6600e-003	5.6600e-003		5.2800e-003	5.2800e-003	0.0000	21.5525	21.5525	5.6500e-003	0.0000	21.6938
Total	0.0121	0.1151	0.1204	2.5000e-004	4.4000e-003	5.6600e-003	0.0101	1.1100e-003	5.2800e-003	6.3900e-003	0.0000	21.5525	21.5525	5.6500e-003	0.0000	21.6938

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3.5 Site Prep - Year 2 - 2022**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.0000e-005	2.7000e-003	6.3000e-004	1.0000e-005	1.9000e-004	1.0000e-005	1.9000e-004	5.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.8172	0.8172	4.0000e-005	0.0000	0.8181
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8000e-004	1.2000e-004	1.3200e-003	0.0000	5.0000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.4000e-004	0.0000	0.3986	0.3986	1.0000e-005	0.0000	0.3988
Total	2.6000e-004	2.8200e-003	1.9500e-003	1.0000e-005	6.9000e-004	1.0000e-005	6.9000e-004	1.8000e-004	1.0000e-005	2.0000e-004	0.0000	1.2158	1.2158	5.0000e-005	0.0000	1.2169

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.9800e-003	0.0000	1.9800e-003	5.0000e-004	0.0000	5.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0121	0.1151	0.1204	2.5000e-004		5.6600e-003	5.6600e-003		5.2800e-003	5.2800e-003	0.0000	21.5525	21.5525	5.6500e-003	0.0000	21.6938
Total	0.0121	0.1151	0.1204	2.5000e-004	1.9800e-003	5.6600e-003	7.6400e-003	5.0000e-004	5.2800e-003	5.7800e-003	0.0000	21.5525	21.5525	5.6500e-003	0.0000	21.6938

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3.5 Site Prep - Year 2 - 2022**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.0000e-005	2.7000e-003	6.3000e-004	1.0000e-005	1.9000e-004	1.0000e-005	1.9000e-004	5.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.8172	0.8172	4.0000e-005	0.0000	0.8181
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8000e-004	1.2000e-004	1.3200e-003	0.0000	5.0000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.4000e-004	0.0000	0.3986	0.3986	1.0000e-005	0.0000	0.3988
Total	2.6000e-004	2.8200e-003	1.9500e-003	1.0000e-005	6.9000e-004	1.0000e-005	6.9000e-004	1.8000e-004	1.0000e-005	2.0000e-004	0.0000	1.2158	1.2158	5.0000e-005	0.0000	1.2169

3.6 Bank Rehab - Year 2 - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0957	0.0000	0.0957	0.0606	0.0000	0.0606	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0674	0.6272	0.6273	1.0800e-003		0.0332	0.0332		0.0310	0.0310	0.0000	94.4769	94.4769	0.0242	0.0000	95.0827
Total	0.0674	0.6272	0.6273	1.0800e-003	0.0957	0.0332	0.1289	0.0606	0.0310	0.0916	0.0000	94.4769	94.4769	0.0242	0.0000	95.0827

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3.6 Bank Rehab - Year 2 - 2022**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.8300e-003	0.0939	0.0219	2.9000e-004	6.4900e-003	2.7000e-004	6.7600e-003	1.7800e-003	2.6000e-004	2.0500e-003	0.0000	28.4152	28.4152	1.2800e-003	0.0000	28.4471
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2400e-003	8.2000e-004	9.0400e-003	3.0000e-005	3.4100e-003	2.0000e-005	3.4300e-003	9.1000e-004	2.0000e-005	9.3000e-004	0.0000	2.7206	2.7206	6.0000e-005	0.0000	2.7220
Total	4.0700e-003	0.0948	0.0310	3.2000e-004	9.9000e-003	2.9000e-004	0.0102	2.6900e-003	2.8000e-004	2.9800e-003	0.0000	31.1358	31.1358	1.3400e-003	0.0000	31.1692

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0431	0.0000	0.0431	0.0273	0.0000	0.0273	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0674	0.6272	0.6273	1.0800e-003		0.0332	0.0332		0.0310	0.0310	0.0000	94.4767	94.4767	0.0242	0.0000	95.0826
Total	0.0674	0.6272	0.6273	1.0800e-003	0.0431	0.0332	0.0762	0.0273	0.0310	0.0583	0.0000	94.4767	94.4767	0.0242	0.0000	95.0826

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3.6 Bank Rehab - Year 2 - 2022**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.8300e-003	0.0939	0.0219	2.9000e-004	6.4900e-003	2.7000e-004	6.7600e-003	1.7800e-003	2.6000e-004	2.0500e-003	0.0000	28.4152	28.4152	1.2800e-003	0.0000	28.4471
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2400e-003	8.2000e-004	9.0400e-003	3.0000e-005	3.4100e-003	2.0000e-005	3.4300e-003	9.1000e-004	2.0000e-005	9.3000e-004	0.0000	2.7206	2.7206	6.0000e-005	0.0000	2.7220
Total	4.0700e-003	0.0948	0.0310	3.2000e-004	9.9000e-003	2.9000e-004	0.0102	2.6900e-003	2.8000e-004	2.9800e-003	0.0000	31.1358	31.1358	1.3400e-003	0.0000	31.1692

3.7 Site Restoration - Year 2 - 2021**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.8300e-003	0.0000	5.8300e-003	6.3000e-004	0.0000	6.3000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.5100e-003	0.0899	0.0468	1.2000e-004		3.4500e-003	3.4500e-003		3.1700e-003	3.1700e-003	0.0000	10.1992	10.1992	3.3000e-003	0.0000	10.2816
Total	7.5100e-003	0.0899	0.0468	1.2000e-004	5.8300e-003	3.4500e-003	9.2800e-003	6.3000e-004	3.1700e-003	3.8000e-003	0.0000	10.1992	10.1992	3.3000e-003	0.0000	10.2816

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3.7 Site Restoration - Year 2 - 2021**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.0000e-005	2.9400e-003	6.4000e-004	1.0000e-005	1.9000e-004	1.0000e-005	2.0000e-004	5.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.8283	0.8283	4.0000e-005	0.0000	0.8293
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-004	1.4000e-004	1.5100e-003	0.0000	5.2000e-004	0.0000	5.3000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.4333	0.4333	1.0000e-005	0.0000	0.4336
Total	2.9000e-004	3.0800e-003	2.1500e-003	1.0000e-005	7.1000e-004	1.0000e-005	7.3000e-004	1.9000e-004	1.0000e-005	2.0000e-004	0.0000	1.2617	1.2617	5.0000e-005	0.0000	1.2628

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.6200e-003	0.0000	2.6200e-003	2.8000e-004	0.0000	2.8000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.5100e-003	0.0899	0.0468	1.2000e-004		3.4500e-003	3.4500e-003		3.1700e-003	3.1700e-003	0.0000	10.1992	10.1992	3.3000e-003	0.0000	10.2816
Total	7.5100e-003	0.0899	0.0468	1.2000e-004	2.6200e-003	3.4500e-003	6.0700e-003	2.8000e-004	3.1700e-003	3.4500e-003	0.0000	10.1992	10.1992	3.3000e-003	0.0000	10.2816

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3.7 Site Restoration - Year 2 - 2021**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.0000e-005	2.9400e-003	6.4000e-004	1.0000e-005	1.9000e-004	1.0000e-005	2.0000e-004	5.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.8283	0.8283	4.0000e-005	0.0000	0.8293
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-004	1.4000e-004	1.5100e-003	0.0000	5.2000e-004	0.0000	5.3000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.4333	0.4333	1.0000e-005	0.0000	0.4336
Total	2.9000e-004	3.0800e-003	2.1500e-003	1.0000e-005	7.1000e-004	1.0000e-005	7.3000e-004	1.9000e-004	1.0000e-005	2.0000e-004	0.0000	1.2617	1.2617	5.0000e-005	0.0000	1.2628

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile****4.2 Trip Summary Information**

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Total					

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by

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4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
	0.610498	0.036775	0.183084	0.106123	0.014413	0.005007	0.012610	0.021118	0.002144	0.001548	0.005312	0.000627	0.000740

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

6.0 Area Detail

6.1 Mitigation Measures Area

[illegible]

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6.2 Area by SubCategory

Unmitigated

[illegible]

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6.2 Area by SubCategory**Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

7.0 Water Detail

7.1 Mitigation Measures Water**8.0 Waste Detail**

8.1 Mitigation Measures Waste

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Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

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8.2 Waste by Land Use**Mitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

10.0 Stationary Equipment**Fire Pumps and Emergency Generators**

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	------------	-------------	-------------	-----------

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

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Appendix C

Biological Site Assessment

Calabazas Creek Bank Rehabilitation Project

Biological Site Assessment to Support the Project's

CEQA and Biological Resource Permit Applications



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August 10, 2020

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Section 1. Introduction

This Biological Site Assessment (BSA) provides the baseline environmental setting, as related to biological resources, for Valley Water's proposed Calabazas Creek Bank Rehabilitation Project (Project). The purpose of this BSA is to identify sensitive biological resources that may be present in the Project area, to evaluate potential Project impacts on those resources, and determine if measures could be implemented by the Project to avoid and minimize impacts to biological resources. This BSA is intended to support the Project's biological resource permit applications and the biological resources section of the California Environmental Quality Act (CEQA) Mitigated Negative Declaration (MND).

For this BSA sensitive biological resources are defined as:

- Wetlands, streams, and the riparian vegetation surrounding them
- Critical Habitats designated by United States Fish and Wildlife Service (USFWS) or National Marine Fisheries Service
- Sensitive Natural Communities defined by California Department of Fish and Wildlife (CDFW) as natural communities with State Rankings S1-S3
- Nesting birds and raptor nests in or near the Project area, pursuant to Federal or State law
- Special-status species

For this BSA, special-status species are defined as:

- Plants that are listed as threatened, endangered, or have a California Rare Plant Ranking (CRPR) of 1A, 1B, 2A, 2B, 3, or 4
- Animals that are listed as candidate, threatened, endangered, or fully protected, pursuant to Federal or State law
- Animals that are listed as California Species of Special Concern (CSSC) by CDFW
- Bat species designated as high or medium priority by the Western Bat Working Group (WBWG-M & WBWG-H)

This BSA was performed by Valley Water Wildlife Biologist Shawn Lockwood and Valley Water Senior Plant Ecologist Janell Hillman (hereinafter "we").

1.1 Project Background

Valley Water is responsible for maintenance of Calabazas Creek, which extends approximately 13.3 miles from the confluence with the Guadalupe Slough on the San Francisco Bay upstream to the Saratoga foothills. The total drainage area of Calabazas Creek is 22.7 square miles, over 90% of which is urbanized. Consequently, maintenance of the creek channel is necessary to support the creek's function as a flood protection facility, to prevent damage to adjacent properties from erosion, and to minimize impacts to the natural creek habitat (e.g., loss of habitat, reduced water quality).

The Project reach, which spans approximately 0.7 mile from Bollinger Road (upstream end) to Miller Avenue (downstream end), is used for groundwater recharge by Valley Water. Imported water from the Stevens Creek pipeline is released about one-quarter mile upstream of Prospect Road near the Union Pacific Railroad, approximately 1.75 miles upstream of the Project area. The recharge zone usually extends downstream through the Project area and past Interstate 280 to about North Tantau Avenue. Depending

on the gravels in the creek, the released water may go below ground in some areas and re-surface further downstream.

Calabazas Creek in the Project area is a deeply incised watercourse with a history of bank erosion and little distance between the top of bank and residential fence lines. In 2011, Valley Water completed construction of the Calabazas Creek Flood Protection Project along 3.7 miles of Calabazas Creek from Miller Avenue to Wardell Road. As part of that project, Valley Water repaired bank erosion at four locations in the current Project area. During inspections of the Project reach performed by Valley Water in 2017, additional toe erosion, bank failure, and/or surfaces lacking vegetative cover were observed at 10 locations. Many of these deficiencies were the result of winter 2016/2017 storm events and require bank rehabilitation to repair the banks to as-built conditions and prevent further erosion. The purpose of the current Project is to address those deficiencies.

Figure 1 provides regional context for the Project and depicts the Project reach.

1.2 Project Objectives

The Project would repair and stabilize (hereinafter “rehabilitate”) eroding channel banks at 10 locations. Specific objectives of the Project are to:

- Rehabilitate damaged creek bank sections to as-built or natural conditions, including to prevent potential damage to adjacent properties
- Minimize future bank failure
- Minimize impacts on water quality and riparian habitat associated with continued bank erosion
- Reduce the need for on-going maintenance
- Continue to provide adequate flood protection

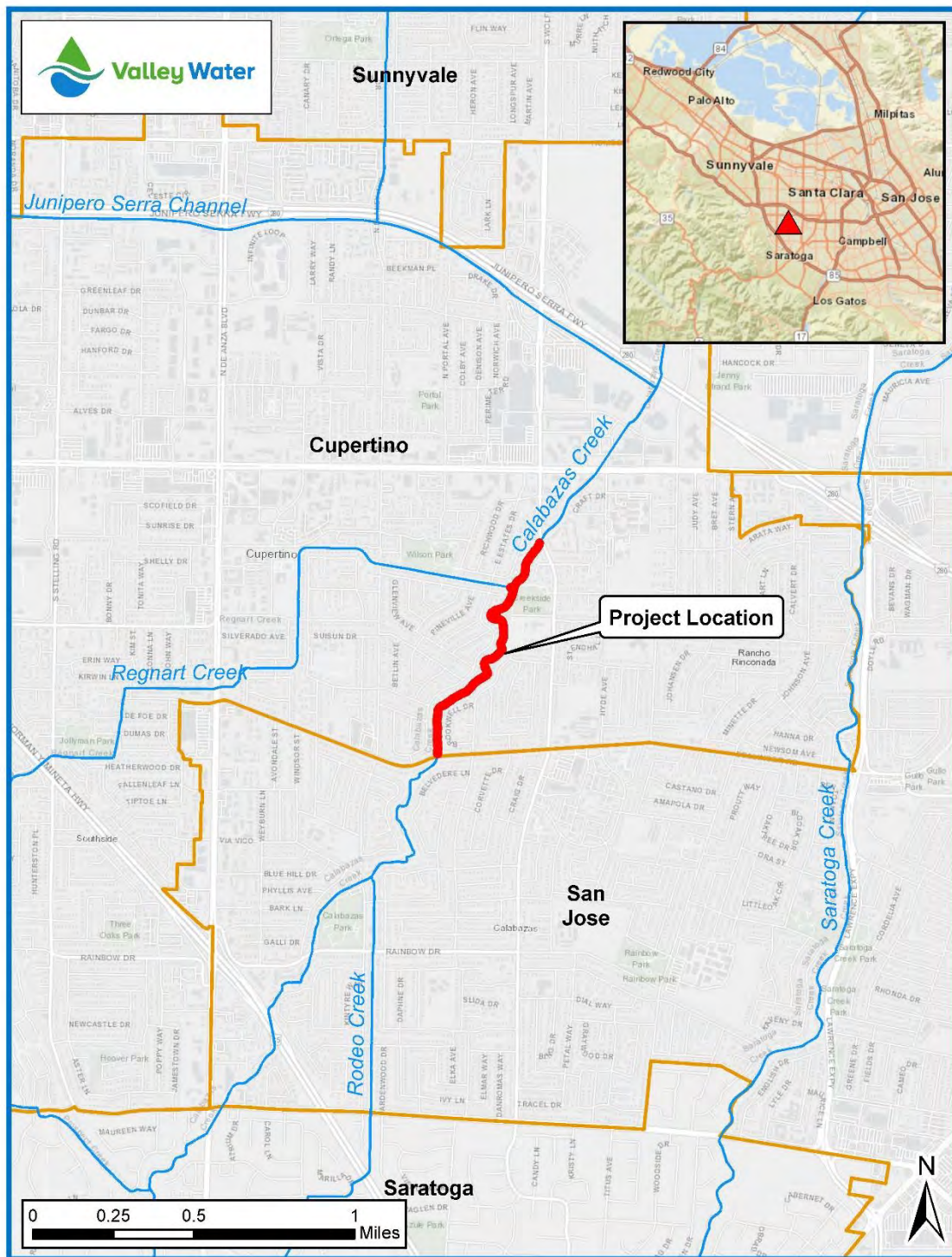


Figure 1
Regional Context

1.3 Project Description

The Project includes bank rehabilitation at 10 sites where creek banks have been compromised by erosion. Work would generally be conducted in three phases for each site: 1) site preparation, 2) bank protection, and 3) site restoration.

Figure 2 depicts the locations of the bank failure sites.

Table 1 details the proposed rehabilitation at each bank failure site.

1.3.1 Site Preparation

Site preparation would include establishing staging areas and access locations, dewatering of the creek channel if needed, and preparing each of the 10 work locations for the bank rehabilitation work. Equipment and materials would be delivered to the Project site and staged in an approximately 3,400-square-foot area (120 feet long and 28 feet wide) in the northwest corner of Creekside Park. The staging area would be located on the edge of the existing athletic fields. The access to the creek channel and bank rehabilitation sites would occur from the existing earthen access ramp at Creekside Park and from a paved access ramp on Bollinger Road. Equipment and materials would travel through the channel to the work sites. Materials that would be used for the bank repair would be staged locally prior to the start of work.

While work is anticipated to occur when the creek is dry, there is a low possibility that in-channel pools or minor flows would be encountered. To ensure flows do not enter the work area, cofferdams would be constructed upstream of the work area and water would be pumped through a diversion pipe to a discharge location downstream of the work area if needed. The cofferdams would be constructed of gravel bags lined with a Visqueen plastic sheeting. The area of dewatering and location of cofferdams would be limited to the minimum amount necessary to complete the work, depending on the sites under construction and the construction year.

After access has been established, the eroding creek bank at each site would be cleared of surface vegetation and loose soil. An estimated 32 trees would require removal to complete the Project (see Table 2-1). These trees are dispersed throughout Sites 6 through 10 and comprise of a mix of native, non-native, and invasive species that help form the riparian canopy and mid-story. Care would be taken to minimize impacts on trees and other vegetation to the maximum extent practicable, including avoidance of root systems of trees that are not required to be removed. Removed native soils and vegetation would be hauled off-site for disposal, though some soils may be re-used at one or more of the 10 rehabilitation sites.

1.3.2 Bank Protection

Following site preparation, work crews would begin repair of the 10 erosional features. Generally, two bank rehabilitation treatments would be applied: rip-rap bank protection and sheet pile walls. Rip-rap bank protection involves the placement of large rocks or boulders along the bank to stabilize the bank, whereas sheet pile walls involve installation of vertical, metal walls to protect the bank from further erosion.

Valley Water evaluated the potential for more natural bank rehabilitation, such as through laying back the banks to establish a wider floodplain or by using bioengineered solutions (e.g., willow stakes); however,

these options were rejected due to the narrow width of the riparian corridor (constrained by adjacent development), steep existing creek banks, and the high flow velocities and shear stress in the channel.

Bank rehabilitation work is summarized by site in **Table 1**.

Riprap Bank Rehabilitation

Riprap bank rehabilitation would occur at Sites 1 through 4, 6, and 7. To install the riprap, an approximately 5-foot deep footing trench would be excavated along the toe of the bank and geotextile fabric would be placed over the excavated area. A rock filter backing layer (Backing No. 1, or approximately 75-pound rock) would be spread in a uniform layer over the geotextile fabric. Half-ton riprap (boulders) would then be laid on top of the backing layer along the slope to the specific depth, generally 5 feet thick. Riprap would typically extend to the 1% flood elevation, generally 10 feet above the bottom of the creek, to provide adequate bank protection while minimizing the amount of natural habitat impacted. Clean imported soil would be placed over the riprap on the re-established 1.5:1 embankment slope and compacted. Biodegradable erosion control with hydroseeding would be installed on top of the compacted earth backfill. In some locations, the natural bank slope above the riprap would be laid back (i.e., made less steep) to a 1:1 to 1.5:1 slope in order to reduce the likelihood of erosion. Banks would be recontoured to match the adjacent bank slope (i.e., returned to pre-failure configuration) to the extent possible. Where bank rehabilitation work occurs adjacent to past repairs, riprap would be tied into the existing riprap in a manner that forms a seamless transition. Furthermore, in some locations, the repair work would involve minor shifts in the location of the low-flow channel, generally away from an erosional feature and back towards the center of the creek.

Sheet Pile Wall Bank Protection

Due to the narrow creek corridor and existing vertical nature of the bank failures, sheet pile wall bank protection would occur at Sites 5, 8, 9, and 10. At these sites, the bank would be protected by a metal sheet pile wall in front of (Sites 5 and 8) or pressed into (Sites 9 and 10) the eroding bank. The sheet pile walls would be delivered to the site by trucks in approximately 3-foot wide sections and stored in the staging area until ready for installation. The sheet pile wall would be hydraulically pressed (rather than driven) into the substrate with a silent piling system. At Sites 5 and 8, the sheet pile wall would be installed approximately 2 feet in front of the eroding vertical bank. Clean fill would be placed behind the wall (between the wall and the existing bank) and compacted. The wall at Site 8 would extend up to 6 feet below the top of the vertical bank and the bank behind the wall would be graded to a 1.5:1 slope or flatter and revegetated. At Sites 9 and 10, the sheet pile wall would be installed into the middle of the steep failing bank. Native soil and vegetation on the creek side of the wall would remain intact. An approximately 5- to 7-foot section of the wall would be exposed where the top of the bank meets the wall, and the slope above the wall would be laid back at a 1.5:1 slope and revegetated.

Site 9 also includes a sewer line that crosses over the creek, owned and managed by the City of Sunnyvale. At the request of Valley Water, the City of Sunnyvale plans to divert sewage elsewhere and therefore the pipe, utility bridge, and existing log revetment wall (protecting the existing west abutment) would be removed by Valley Water. This is considered a riparian enhancement through the removal of artificial fill and a potential pollutant source.



Figure 2
Bank Rehabilitation Sites

Table 1. Summary of Work by Site

Site No.	Bank Location	Proposed Repair	Length of Repair (LF)	Approx. Work Area(ft ²)	# Trees Removed
1	East Bank	Replace 25-foot section of eroded concreted half-ton riprap, extend this concreted riprap an additional 10 feet upstream, add 20 linear feet of erosion control blanket upstream to create an appropriate transition, and realign the low-flow channel to the center of the creek.	55	575	-
2	Confluence of Regnart - Calabazas Creek	Repair the eroding dirt embankment (on upstream end of confluence) with soil, compact, and hydroseed. Replace eroded portion of the existing concrete drop structure and place half-ton riprap in the scour hole that has formed where Regnart Creek discharges.	60	750	-
3	East Bank	Use soil to fill the erosional/ void beneath an existing tree. Install half-ton riprap at the bank toe to help protect against future erosion.	40	225	-
4	West Bank	Erosion is occurring under a portion of bank previously fortified with sacked concrete. Excavate under sacked concrete where it is undermined and add one-ton riprap at toe.	70	325	-
5	East Bank	Install sheet pile retaining wall about 2 feet in front of near-vertical failing bank. Backfill with clean fill behind the wall and compact.	130	675	-
6	East Bank	Repair erosion with half-ton riprap at 1.5:1 slope up to 10 feet above the channel and resurface the slope up to top of bank.	120	3,200	3
7	East Bank	Remove debris from landslide. Repair erosional feature with half-ton riprap at 1.5:1 slope up to 10 feet above the channel and resurface the slope up to top of bank.	90	2,150	2
8	East Bank	Install sheet pile retaining wall about 2 feet in front of vertical failing bank. Backfill with clean fill behind the wall and compact.	165	3,000	5
9	West Bank	Install sheet pile retaining wall to stabilize the failing bank (leaving existing soil and vegetation on the creek side of the wall). Excavate and regrade soil behind sheet pile wall at 1.5:1 slope to the top of proposed bank. Remove existing wooden log reinforcement and existing sewer line utility bridge and concrete abutments.	565	8,500	14
10	East Bank (overlaps with Site 9)	Install sheet pile retaining wall to stabilize the failing bank (leaving existing soil and vegetation on the creek side of the wall). Excavate and regrade soil behind sheet pile wall at 1.5:1 slope to the top of proposed bank.	260	3,950	8
Total			1,555 LF	23,350 ft² (0.54 acre)	32 trees

1.3.3 Site Restoration and Revegetation

Following the bank rehabilitation work, the Project area would be restored to a natural, riparian habitat to the maximum extent practicable. Areas of temporarily disturbed natural substrate would be hydroseeded or revegetated. Bank slopes above the installed riprap would be vegetated with a mixture of native herbaceous riparian understory species.

At Sites 9 and 10, native riparian vegetation would be planted along the recontoured bank above the sheet pile walls, covering approximately 0.3 acre and 820 linear feet. Due to overhead electric utility lines, smaller stature trees such as California buckeye (*Aesculus californica*), elderberry (*Sambucus* sp.), and holly-leaved cherry (*Prunus ilicifolia*) would be planted near the bottom of the slope, with native herbaceous understory higher on the bank.

Following any disturbances from equipment access, the channel will be restored to its pre-construction contours to the maximum extent practicable. Post-construction Best Management Practices (BMPs) would be implemented and any unsuitable material would be removed from the Project site.

Section 2. Methods

Our evaluation to determine if sensitive biological resources are present within or adjacent to the Project area consisted of the following. Prior to our field efforts, we conducted a desktop reconnaissance review of the existing information that was available. This was followed by multiple biological surveys throughout the Project area, including upstream and downstream of the Project area. Lastly, we used our findings on presence of sensitive biological resources and the Project's conservation measures to evaluate the Project's potential impacts on those resources.

2.1 Desktop Reconnaissance

As part of our background review we reviewed the following resources:

- California Native Plant Society (CNPS) Rare Plant Inventory using the 9-quad search function (CNPS 2018)
- Processed and unprocessed data layers of California Natural Diversity Database (CNDDDB) using a search radius of 2 miles around the Project area (CDFW 2019a¹; CDFW 2020)
- USFWS Information for Planning and Consultation tool (IPaC) (USFWS 2019a)
- eBird – online database of bird distribution and abundance (Cornell Lab of Ornithology 2019)
- Santa Clara County Breeding Bird Atlas (Bousman, W.G. 2007)
- Google Earth Timeline tool (Google Inc. 2019)
- Alert System – Stream Gauge Reports & Plots (Valley Water 2019)
- Various scientific literature

After we gathered all the available information and prior to our field surveys, we used our professional expertise to interpret, refine, and add to the results of our background review to help us determine the likelihood of occurrence of various sensitive biological resources in the Project area. See Sections 3.1 through 3.4.

2.2 Field Surveys

On November 05, 2018, Valley Water Senior Plant Ecologist Janell Hillman walked the entire Project area as well as each of the 10 proposed bank stabilization sites. These areas were assessed for the presence of special-status plant species with focus on the four special-status plant species identified during the desktop reconnaissance (See Section 3.2) and assessed for suitable habitat for rare species and sensitive natural communities. While a late season survey is not optimal for identification of rare plants, three of the four plant species identified as having potential for being present are perennial can be identified outside of the bloom period, based on our over 20-year experience working with these species. The fourth species, an annual species, was assessed for presence/absence based on the availability of suitable habitat, which would determine the need for future surveys within the bloom period of the species.

¹ The Methods and Results section of this BSA was drafted in 2019. After the project alternatives analysis and project description was completed in May of 2020, we reviewed CNDDDB (CDFW 2020) and confirmed there were no new records within 2-miles of the Project area in the processed and unprocessed data layers prior to completing this BSA.

Valley Water Wildlife Biologist Shawn Lockwood conducted biological surveys to identify any special-status wildlife species or signs of their presence within the Project area on the following dates: November 05, 2018, November 15, 2018, March 26, 2019, and May 29, 2019. Meandering transects were walked throughout the Project area, frequently stopping to use binoculars to scan ahead and increase the likelihood of identifying elusive species from a distance before they sought cover. Trees were viewed with binoculars from numerous vantage points to increase line of sight to potential raptors nests or cavities that could provide owl nesting, falcon nesting, or bat roosting habitat. All structures that remotely resembled a woodrat lodge were closely inspected to determine if it was a woodrat lodge. All animal tracks along the creek banks were inspected to identify any signs of special-status species. Additionally, Mr. Lockwood conducted habitat assessments for various special-status species that are difficult to detect during visual encounter surveys.

Section 3. Results

3.1 Environmental Setting

The Project reach of Calabazas Creek is within a narrow riparian corridor that is constrained by surrounding residential development and is defined by steeply incised banks and lack of in-stream emergent vegetation. This reach of Calabazas Creek is highly modified and disturbed, with some remnant native overstory vegetation and a sparse understory comprised almost entirely of exotic species. The creek channel banks are highly eroded in many locations, and the remnant riparian corridor is thin and narrow (ranging 50-100 feet in width) due to the encroachment from the adjacent residential area.

3.1.1 Land Covers

For the purposes of this BSA, land cover types are defined as the dominant character of the land surface as determined by vegetation, water, or human uses. The Project area, which totals approximately 10 acres, is contained within the riparian corridor along Calabazas Creek up to the residential fence lines between Miller Avenue and Bollinger Road. Within the riparian corridor we identified two land covers, Intermittent Streambed and Mixed Riparian Woodland, which are described below. The Project area is completely surrounded by an Urban-Suburban land cover.

Intermittent Streambed

Water flow in Calabazas Creek is typically concentrated in a single-thread, relatively low-gradient channel below the ordinary high-water mark (OHWM) elevation. The channel is largely unvegetated with a bed of cobble, gravel, and coarse sand. The surrounding riparian tree canopy shades much of the channel. There are areas of existing hardscape within the channel, including locations with existing bank protection (i.e., riprap, grouted riprap, and sacked concrete) and the concrete channel lining at the Bollinger Road and Miller Avenue bridges, each extending approximately 65 feet into the Project area. Regnart Creek flows into Calabazas Creek over a concrete apron and has concrete banks upstream of the apron. The Intermittent streambed in the Project area totals approximately 2.2 acres.

Mixed Riparian Woodland (Coast Live Oak Woodland Alliance)

Riparian habitat in the Project area is constrained by surrounding residential development and Creekside Park, and is defined by steeply incised banks and narrow upland areas above top of bank. The habitat is characterized as a Mixed Riparian Woodland dominated by many remnant and declining heritage-sized valley and coast live oaks (*Quercus lobata* and *Quercus agrifolia*), with a few large sycamores (*Platanus racemosa*) as well as a couple large nonnative trees including a *Eucalyptus* species. Understory shrubs are sparse and include buckeye, red elderberry, poison oak (*Toxicodendron diversilobum*), and some red willow (*Salix laevigata*), as well as nonnative *Acacia* sp. and giant reed (*Arundo donax*). There is no native herbaceous understory layer; the dominant species are nonnative and include English ivy (*Hedera helix*), with smilo grass (*Piptatherum milieaceum*) and scattered stinkwort (*Dittrichia graveolens*).

CDFW considers natural communities with State Ranks of S1-S3 to be sensitive. Using the Sawyer and Keeler-Wolf classification system we classified the Mixed Riparian Woodland in the Project area as a heavily invaded Coast Live Oak Woodland Alliance, a State Rank S4 natural community which is not considered to be sensitive by CDFW. There were no sensitive natural communities identified in the Project reach.

3.1.2 Hydrology

The Calabazas Creek Watershed is mostly urban and fed by storm drain systems. In the reach between Bollinger Road and Miller Avenue (i.e., Project area), there is approximately four-square-miles of drainage, with most of the area being urban and a small percentage in the low-density residential foothills. Regnant Creek, an urban drainage channel, confluences with Calabazas Creek just upstream of Miller Avenue (in the Project area), adding approximately two-square-miles of urbanized watershed. Channel degradation and incision has been noted and is ongoing throughout the Project area, which is a classic example of an urbanized stream with a starved sediment supply (J. Xu, pers. comm. 2019)².

The reach between Bollinger Road and Miller Avenue is ephemeral, only flowing briefly in direct response to precipitation events in the immediate vicinity. The channel is above the ground-water reservoir (Levick et. al. 2008). Stream gauges on Calabazas Creek indicate that the creek is dry most of the year, except for a few days after rain events. On average, the summer months between late April and November have no appreciable flows, only a small amount of leakage from storm drain systems. In the winter months, substantial flows occur which frequently reach over 100-cubic-feet-per-second at six-feet plus above grade. However, these flows recede quickly, usually within 24-hours (J. Xu, pers. comm. 2019; Valley Water 2019).

3.2 Special-status Plant Species

The CNPS search resulted in a list of 45 special-status plant species with potential to occur in the *Milpitas, California* USGS quadrangle and the eight surrounding quadrangles (Attachment A). After an analysis of the documented habitat requirements and occurrence records for each species, we eliminated 41 species because they are found in habitats not present in or suitable to the Project area. Species with some potential to occur at the site (via assessment using both the CNPS Inventory, and CNDDB) because of proximal documented occurrences include western leatherwood (*Dirca occidentalis*; CRPR 1B.2), with one recorded occurrence approximately four miles southwest of the Project area; Loma Prieta hoita (*Hoita strobilina*; CRPR 1B.1), with an occurrence far upstream of the Project area; arcuate bush mallow (*Malacothamnus arcuatus*; CRPR 1B.2), with an occurrence far upstream of the Project area; and woodland Monolopia (*Monolopia gracilens*; CRPR 1B.2), also with an occurrence far upstream of the Project area. These last three special-status plant species have documented occurrences in the Saratoga foothills, approximately 2.0-3.25 miles west/southwest of the Project site.

Loma Prieta hoita and arcuate bush mallow can be identified outside of the bloom period by an experienced botanist and were not noted in the Project area. Western leatherwood, found in riparian areas, is more difficult to identify outside of its winter bloom period; however, each of the bank stabilization sites were carefully searched for this species and it was not found; also, the habitat is so highly modified and disturbed in this reach of Calabazas Creek there is virtually little to no potential for this species to be present within the proposed work areas. There was no suitable habitat for woodland monolopia in the Project area. No other special-status plants were identified during the survey and future rare plant surveys are not recommended. **Special-status plants are considered to be absent within the Project area.**

3.3 Special-status Fish and Wildlife Species

The CNDDDB search resulted in a list of three wildlife “special animal³” species within two miles of the Project areas (CDFW 2019a; CDFW 2020). The USFWS IPAC System report generated a list of eight fish and wildlife species that are federally listed (Attachment B). In addition, we added eight wildlife species, including an ecological guild called “common raptors”, that did not return from the sources above. These species are either known to occur or have a potential to occur on the valley floor in Santa Clara County. Common raptors are not typically considered “special-status species”; however, since their nests are protected year-round under California Fish and Game Code 3503.5, from a Project standpoint we included them.

This resulted in a total list of 18 fish and wildlife species that were evaluated for their potential to occur within the Project area. In Sections 3.3.1 – 3.3.7 below, we discuss the six species and one ecological guild that were determined to either be present or have a likelihood of presence in the Project area. Our findings on occurrence for all 18 of the special-status species are summarized in **Table 2** in Section 3.4. **Table 2** includes our rationale for determining absence for the other 11 species.

The Project area does not intersect any Critical Habitat units for federally listed species.

3.3.1 Common Raptor Species

Several species of raptors that nest in riparian habitats but are not special-status species are fairly common to common breeders on the valley floor (i.e., the Project area). Because raptor nests are protected year-round under CFGC 3503.5, they are included in this discussion of special status wildlife species.

We identified a raptor/corvid sized nest outside of the nesting season in November 2018. We conducted an additional survey during the nesting season in March 2019 and observed a prey delivery to the nest by a male Cooper’s hawk (*Accipiter cooperii*), positively identifying it as a Cooper’s hawk nest.

We do not suspect that other raptors are nesting in the Project area because we did not observe any cavities or stick nests large enough to be used by raptors for nesting. Western screech owl (*Megascops kennicottii*), barn owl (*Tyto alba*), and American kestrel (*Falco sparverius*) are cavity nesters that have potential to nest in the general area. However, we did not find any cavities in the Project area large enough to support nesting and these species do not create (i.e., excavate) cavities. The likelihood of cavities being created by woodpeckers or limb failures exposing cavities and then being found by these species prior to or during Project construction is considered to be low.

Great-horned owls (*Bubo virginianus*) have potential to nest in the general area. This species does not build its own nests, but relies on used nests (e.g., hawk and raven nests), snags or broken trees with suitable sized cavities, or manmade structures. We did not identify any suitable nesting locations for great-horned owls within the Project area during our surveys. Therefore, the likelihood of great-horned owls nesting in the Project area prior to or during Project construction is considered low.

³ “Special Animals” is a broad term used to refer to all the animal taxa tracked by CDFW’s CNDDDB, regardless of their legal or protection status (CDFW 2019c).

Red-tailed hawks (*Buteo jamaicensis*) have potential to nest in the general area. In Santa Clara County, red-tailed hawks are considered sedentary and likely remain on their territories year-round (Bousman 2007); however, they were not detected during any of our surveys. In addition, there are only two large trees (one eucalyptus tree with the Cooper's hawk nest and one redwood) within the Project area, which could provide elevated sites for nesting of this species (i.e. we deemed suitable as nest sites). Because we did not detect this species or historic nests during our surveys and since there are only two trees tall enough to serve as potential nesting locations, nest establishment in the Project area prior to or during the Project is considered unlikely.

Red-shouldered hawks (*Buteo lineatus*) are considered to be fairly common in Santa Clara County (Bousman 2016). They mostly nest in riparian and oak woodlands but can also nest in suburban areas (Dykstra et al. 2008; S. Lockwood pers. obs.). There are numerous trees in the Project area large enough to support nesting by this species. In Santa Clara County, red-shouldered hawks are likely on their territory year-round and are easily detected due to their conspicuous vocal behaviors (Bousman 2007). We did not detect this species or historic nests during our surveys. Because this species builds its own nests and there are suitable nesting locations (i.e., oak trees of appropriate size), we consider the likelihood of red-shoulder hawks establishing a nest in the Project area prior to or during the work to be low-to-moderate.

Common raptor species are considered present as breeders within or adjacent to the Project area.

3.3.2 Yellow Warbler

Yellow warbler (*Setophaga petechia*; CSSC when nesting) was not observed during the surveys performed for this BSA. Early observers in Santa Clara County considered yellow warbler to be a common-to-abundant summer resident (Barlow 1900; Grinnell & Wythe 1927). A decline in breeding yellow warbler has been observed in Santa Clara County since the 1970s (Bousman 2007). This trend appears to be widespread on the central coast, with declines also noted in Monterey and Alameda counties (Roberson and Tenney 1993; Richmond et. al. 2011). Currently, yellow warbler is considered to be uncommon summer resident in the county (Bousman 2016). Our literature review showed that the preferred nesting habitat for yellow warbler is multi-story riparian habitats with dense understory. On the valley floor in Santa Clara County, yellow warbler has been documented nesting along riparian corridors, often with a mature overstory of cottonwoods and sycamores, a midstory of willow and box elder, and a substantial shrub understory of vines, blackberries, and forbs (Bousman 2007). We assessed the riparian habitat onsite and determined that due to the lack of riparian habitat complexity (midstory and dense understory is absent), suitable nesting habitat is absent within the Project area. However, this species may seasonally forage or be found in the Project area as a summer resident or an itinerant migrant. Because of these factors, **yellow warbler is considered absent as a breeder within the Project area.**

3.3.3 Yellow-breasted Chat

Yellow-breasted chat (*Icteria virens*; CSSC when nesting) was not observed during the surveys performed for this BSA. Historically fairly common in Santa Clara County, the yellow-breasted chat is now considered to be very rare in the county (Bousman 2016) and is only found breeding in scattered riparian locations in the Diablo Range in southern portions of the county (Bousman 2007). This decline appears to be statewide (Shuford & Gardali. 2008). Our literature review showed that yellow-breasted chat utilizes a variety of nesting habitats (multi-overstory, no overstory, etc.) which have dense understories. We assessed the riparian habitat onsite and determined that due to the lack of a dense understory, suitable nesting habitat is absent within the Project area. However, this species may seasonally forage or be found in the Project

area as a summer resident or an itinerant migrant. Because of these factors, **yellow-breasted chat is considered absent as a breeder within the Project area.**

3.3.4 Western Red Bat

No bats or sign of their presence was observed during the surveys performed for this BSA. We reviewed the ecology of the western red bat (*Lasiurus blossevillei*; CSSC & WBWG-H), a migratory and typically solitary foliage roosting species. Western red bat is not known to raise young in Santa Clara County (D. Johnston, pers. comm. 2019; Johnston; D. S., and S. Whitford. 2009) and is considered absent as a maternity rooster. This migratory species is known to overwinter in the San Francisco Bay Area, generally present from November to February (Johnston, D. S., and S. Whitford. 2009; Cryan, P. M., 2003). Local bat biologists' impressions are that this species is usually not present in the central coast during summer; however, recently there have been some auditory detections of the species between May and July. Because the species is not known to breed in the county and there is some evidence that sexes move to different areas in spring and summer it is presumed that low numbers of males, most of which are probably itinerant migrants, can be found in central coast in late spring and summer (J. Watson, pers. Comm. 2020). Because this species is usually not present in spring and summer in the county, during Project construction (i.e., May 1 – October 15) **western red bat is considered Unlikely Present.**

3.3.5 Townsend's Big-eared Bat

No bats or sign of their presence was observed during the surveys performed for this BSA. Townsend's big-eared bat (*Corynorhinus townsendii*; CSSC & WBWG-H) is a cave-dwelling species, but is also known to use old, mostly-abandoned buildings with darkened and enclosed cave-like attics in addition to other anthropogenic structures (Barbour and Davis 1969). There are 11 CNDDDB records for this species in the county. Five of the accounts were historic collections (1933–1966). Two of these historic records were documented as being collected in man-made structures and the other three did not have documented roosting locations. The remaining six records are recent (2000 – 2009) and were documented roosting in man-made structures. There are no records of Townsend's big-eared bat within 5 miles of the Project area. We did not identify structures in or immediately adjacent to the Project area that could be considered suitable roosting locations for Townsend's big-eared bat. However, this species may forage at night in the Project area. Because of these factors, **Townsend's big-eared bat is considered absent as a rooster within the Project area.**

3.3.6 Pallid Bat

No bats or sign of their presence was observed during the surveys performed for this BSA. Pallid bat (*Antrozous pallidus*; CSSC & WBWG-H) has been recorded roosting in a variety of structures including rock cracks and crevices, caves, buildings, bridges, and tree cavities (Baker et al. 2008, Hermanson & O'Shea 1983; O'Shea and Vaughan 1977). However, most often this species uses crevices and cracks in rocks or secondarily human structures throughout its range (Barbour and Davis 1969). There are 13 CNDDDB records for this species in the county. Seven of the accounts were historic collections (1937–1956) where no roosting habitat was described. The other six records are recent (2004 – 2011) and were documented roosting in man-made structures. There are no records of pallid bat within 5 miles of the Project area. We did not identify structures in or immediately adjacent to the Project area that could be considered suitable roosting locations for pallid bat. However, this species may forage at night in the Project area. Because of these factors, **pallid bat is considered absent as a rooster within the Project area.**

3.3.7 San Francisco Dusky-footed Woodrat

Numerous San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*; CSSC) lodges were observed during the surveys performed for this BSA. **San Francisco dusky-footed woodrats are present within the Project area.**

3.4 Special-status Species Summary

The results of our CNDDDB query with the locations of occurrences are depicted, relative to the Project area, in **Figure 3**. Results pertaining to 22 special-status plant, fish, and wildlife species, their status, habitat descriptions, and our findings on potential for occurrence within the Project area are summarized in **Table 2**.



Figure 3
CNDDDB Occurrences

Table 2: Special-status Species, Their Status, Habitat Description, and Potential for Occurrence Within or near the Project Area

Names ^a	Status ^b	Habitat	Potential for Occurrence in the Project Area
PLANTS			
western leatherwood ^{1,4} (<i>Dirca occidentalis</i>)	CRPR 1B.2	Broad-leafed upland forest, Closed-cone coniferous forest, Chaparral, Cismontane woodland, North Coast coniferous forest, Riparian forest, Riparian woodland; mesic areas	Absent; Not observed in Project area by Qualified Plant Ecologist.
Loma Prieta hoita ^{1,4} (<i>Hoita strobilina</i>)	CRPR 1B.1	Chaparral, Cismontane woodland, Riparian woodland; usually serpentinite or mesic areas	Absent; Not observed in Project area by Qualified Plant Ecologist.
arcuate bush-mallow ^{1,4} (<i>Malacothamnus arcuatus</i>)	CRPR 1B.2	Chaparral, Cismontane woodland	Absent; Not observed in Project area by Qualified Plant Ecologist.
woodland Monolopia ^{1,4} (<i>Monolopia gracilens</i>)	CRPR 1B.2	Serpentine, Broad-leafed upland forests (openings), Cismontane woodland, valley and foothill grassland	Absent; Qualified Plant Ecologist determined that there is no suitable habitat in the Project area.

Names ^a	Status ^b	Habitat	Potential for Occurrence in the Project Area
INSECTS			
bay checkerspot butterfly ³ (<i>Euphydryas editha bayensis</i>)	FT	Serpentine grasslands	Absent; Species inhabits serpentine grasslands that are not present in or immediately adjacent to the Project area. The Project does not intersect any of the populations or “habitat units” that are well known and monitored within the county (ICF 2012).
San Bruno elfin butterfly ³ (<i>Callophrys mossii bayensis</i>)	FE	Coastal grasslands and low scrub of north-facing slopes within the fog belt where the larval host plant grows	Absent; Species is restricted to San Mateo County (USFWS 2019b).
FISH			
delta smelt ³ (<i>Hypomesus transpacificus</i>)	FT; SE	Estuaries in the Sacramento-San Joaquin Delta; Seasonally in Suisun bay, Carquinez Straight and San Pablo Bay	Absent; Project area is outside of the species known range (CDFW 2019b; USFWS 2017).
AMPHIBIANS			
California tiger salamander ³ (<i>Ambystoma californiense</i>)	FT; ST	Temporary or perennial pools and surrounding uplands in annual grasslands or open woodlands	Absent; Our analysis of known locality records in CNDDDB reveals that the species has disappeared from the valley floor in northern Santa Clara County (CDFW 2019a; CDFW 2020) and is likely extirpated in these areas due to the massive conversion of open habitats and rural/agricultural land uses to urban hardscape (H.T. Harvey 1997a; ICF 2012). In addition, riparian habitat (i.e., the Project area) is not suitable habitat for this species.

Names ^a	Status ^b	Habitat	Potential for Occurrence in the Project Area
California red-legged frog ³ (<i>Rana draytonii</i> ; CRLF)	FT; CSSC	Streams, freshwater pools, and ponds with emergent or overhanging vegetation and surrounding uplands	Absent; Our review of known locality records in CNDDDB revealed that there are no known occurrences on the valley floor in the northern portion of the county (i.e., Project area), only records in the surrounding foothills and mountains (CDFW 2019a; CDFW 2020). Determining factors that preclude CRLF breeding within the Project area include: the ephemeral creek's extremely flashy water regime (i.e. only holding water a few days on average after rain events before drying) does not sustain the needed hydroperiod for CRLF breeding; absence of pools with appropriate depths that retain water long enough to support CRLF breeding when the remainder of the creek is dry; and, absence of emergent vegetation needed for attachment of egg masses. Contributing in-stream conditions that limit aquatic habitat suitability for non-breeding CRLF include: substantial storm flows (frequently over 100-cubic-feet-per-second at +6 feet above bottom grade); the acute ephemeral nature of the creek (short-lived hydroperiods), lack of off-channel refugia to provide habitat during substantial flows; and, the lack of emergent vegetation combined with long shallow runs yielding substantial risk of predation for CRLF for the brief periods when flows are present and not substantial. Use of upland habitat by CRLF is strongly correlated with the proximity of suitable aquatic habitat, which is absent. Additional contributing factors include the meager widths of the riparian corridor (~50-100 feet) combined with deeply incised vertical banks and the surrounding areas are completely built out for residential land uses. The closest record is on Calabazas Creek in the eastern foothills of the Santa Cruz Mountains (Occurrence # 961). This record is ~3.6 overland miles from the Project area, through the urban and residential areas. The in-stream distance to this record is ~4.8 miles upstream of the Project area. This record is far outside the 1-mile search radius provided as a general guideline by USFWS when performing site assessments for CRLF (USFWS 2005). Additionally, this record is more than double the distance of the furthest long-distance movements (1.74 – 2.24 miles) that have been recorded by CLRF (Bulger 1998; Bulger <i>et al.</i> 2003; Fellers and Kleeman 2007; Rathbun <i>et al.</i> 1993). Because of these factors, CRLF is considered absent within the Project area. Furthermore, two independent CRLF assessments support this finding: 1.) In 2007, a protocol-level habitat assessment for CRLF was performed along Calabazas Creek between Miller Avenue and Comer Drive, which included the Project area. The habitat assessment concluded that this portion of Calabazas Creek does not provide Ranid frog breeding habitat, would not be used by migrating CRLF, and that CRLF are not expected in this portion of Calabazas Creek (ESA. 2007); and, 2.) Analysis of known locality records for CRLF from Santa Clara County reveals that the species has essentially disappeared from the urbanized lowland areas of the county (H.T. Harvey and Associates. 1997b; ICF 2012).

Names ^a	Status ^b	Habitat	Potential for Occurrence in the Project Area
REPTILES			
western pond turtle ⁴ (<i>Actinemys marmorata pallida</i> ; WPT)	CSSC	Ponds, lakes, perennial and intermittent streams, and wetlands with vegetation, basking habitat, and upland areas for reproduction	Absent; Contributing in-stream conditions that limit aquatic habitat suitability include: water is absent most of the year, water is only present for brief periods after rain events due to the hydrology (swift dry-back rates) of the creek, some rain events result in substantial storm flows (frequently over 100-cubic-feet-per-second at +6 feet above bottom grade); lack of off-channel refugia to provide habitat during extreme storm flows; lack of optimal in-stream habitat features for the brief periods when flows are present and not substantial; and, the lack of emergent vegetation combined with long shallow runs yielding substantial risk of predation for WPT for the brief periods when flows are present and not substantial. Use of upland habitat by WPT is strongly correlated with the proximity of suitable aquatic habitat, which is absent. Additional contributing factors include the meager widths of the riparian corridor (~50-100 feet) combined with deeply incised vertical banks and the surrounding areas are completely built out for residential land uses. Because WPT are not expected to occur within the habitats onsite, the primary concern of impacting WPT would come from an itinerant turtle moving through the Project area. There are no records of WPT in Calabazas Creek in the processed and unprocessed data layers in CNNDDB (CDFW 2019a; CDFW 2020). The closest record of WPT is more than five overland miles away (Occ # 175 at Vasona Lake). Development impediments make migration between this site and the Project area impossible. Because of these factors, WPT is considered absent within the Project area.
BIRDS			
California Ridgway's rail ³ (<i>Rallus obsoletus obsoletus</i>)	FE; SE	Saltwater and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay	Absent; Project area is outside of the species known range (CDFW 2014; USFWS 2013).

Names ^a	Status ^b	Habitat	Potential for Occurrence in the Project Area
California least tern ³ (<i>Sterna antillarum browni</i>)	FE; SE	Nests along the coasts from San Francisco to northern Baja in sparsely vegetated, flat substrates such as sand beaches, alkali flats, and levee roads	Absent; Project area is outside of the species known range (CDFW 2014; USFWS 2013).
marbled murrelet ³ (<i>Brachyramphus marmoratus</i>)	FT; SE	Forests that primarily include typical old-growth forests, but also use mature forests with an old-growth component.	Absent; Project area is outside of the species known range (USFWS 1997).
western burrowing owl ² (<i>Athene cunicularia</i>)	CSSC	Open sparsely vegetated areas with mammal burrows	Absent; The Project area is completely surrounded by residential and urban land uses and this species does not use riparian habitats (i.e., the Project area).
white-tailed kite ⁴ (<i>Elanus leucurus</i>)	FP; CFGC	Nest high in dense tree stands near foraging habitat. Forage in open grasslands, meadows, agricultural, and marsh habitats	Absent; Potential nesting substrates are present, but the adjacent foraging habitat required for nesting is absent.
common raptor species ^{2,4}	CFGC	Nest in a wide array of habitats including riparian areas, woodlands, and residential areas	Present as Breeder; A Cooper's hawk nest is present in the Project area. Suitable breeding habitat is present in the Project area for other common raptors species.

Names ^a	Status ^b	Habitat	Potential for Occurrence in the Project Area
yellow warbler ⁴ (<i>Setophaga petechia</i>)	CSSC	Nest in multi-story riparian habitats with dense understories	Absent as Breeder; Project area lacks multi-story riparian habitats with dense understory which is used for nesting by the species. Species may forage within the Project area as summer resident or itinerant migrant.
yellow-breasted chat ⁴ (<i>Icteria virens</i>)	CSSC	Nest in riparian or open habitats with dense understories	Absent as Breeder; Project area lacks dense understory which is used for nesting by the species. Species may forage within the Project area as summer resident or itinerant migrant.

MAMMALS

western red bat ⁴ (<i>Lasiurus blossevillii</i>)	CSSC; WBWG-H	Roosts primarily in trees, less often shrubs. Roost sites often in edge habitats	Unlikely Present; Migratory species that is not known to raise young in Santa Clara County. Overwinters in the county generally from November to February. In general, this species is not found in the central coast in summer, but low numbers of this species (presumably males and mostly itinerant migrants) have been detected in late spring and summer so it is possible but unlikely for the species to be present when the work is occurring (i.e., May 1 – October 15).
Townsend's big-eared bat ⁴ (<i>Corynorhinus townsendii</i>)	CSSC; WBWG-H	Roosts in caves, mines, tunnels, buildings, or other human-made structures	Absent as Rooster; No potential roosting structures or bat sign (i.e., guano, urine stains, or prey remains) was observed in or adjacent to the Project area.
pallid bat ⁴ (<i>Antrozous pallidus</i>)	CSSC; WBWG-H	Roosts in rock cracks and crevices, caves, buildings, bridges, and tree cavities	Absent as Rooster; No potential roosting structures or bat sign (i.e., guano, urine stains, or prey remains) was observed in or adjacent to the Project area.

Names ^a	Status ^b	Habitat	Potential for Occurrence in the Project Area
San Francisco dusky-footed woodrat ^{2,4} (<i>Neotoma fuscipes annectens</i>)	CSSC	Riparian and woodland habitats.	Present; Woodrat lodges are present in the Project area.

^a Key to Sources: 1 = CNPS Inventory of Rare and Endangered Plants database; 2 = CNDDDB 2-mile Query; 3 = USFWS IPAC System; 4 = Valley Water

^b Key to Status Abbreviations: CFGC = California Fish and Game Code 3503.5; CRPR = California Rare Plant Rank; CSSC = California Species of Special Concern; FP = Fully Protected; SE= State Endangered; ST = State Threatened; FE = Federally Endangered; FT = Federally Threatened; WBWG-H = Western Bat Working Group High Priority

Section 4. Analysis

Below we summarize the Project impacts, describe the Project's conservation measures, and evaluate potential impacts to sensitive biological resources.

4.1 Impacts

A summary of the Project's impacts is provided in **Table 3** and **Table 4** below. In addition, at least one San Francisco dusky-footed woodrat lodge, a California Species of Special Concern, would need to be relocated out of the work area.

Table 3: Summary of Impacts to Riparian Habitat

Site	Intermittent Stream		Mixed Riparian Woodland	
	Permanent (ft ²)	Temporary ^a (ft ²)	Permanent (ft ²)	Temporary (ft ²)
1	-	-	176	- ^b
2	278	363	51	44
3	156	-	74	-
4	323	-	-	-
5	-	-	331	340
6	-	-	1,522	166
7	-	-	976	534
8	-	-	453	2,197
9	-	-	-	8,539
10	-	-	-	3,937
Total	757 ft² (0.02 acre)	363 ft² (0.01 acre)	3,583 ft² (0.08 acre)	15,757 ft² (0.36 acre)

^a - Temporary impacts on the stream channel do not include impacts from dewatering and equipment access, which total approximately 2.20 acres. The stream channel would be restored to pre-Project contours and conditions at the conclusion of work.

^b - The Project would replace 399 square feet of existing grouted riprap, but this is not counted as part of the impact total.

Table 4: Estimated Riparian Tree Removals

Species	DBH (inches)	Number of Trees Removed
Coast Live Oak and Valley Oak	>2 - 6	3
	>6 – 12	4
	>12 – 18	3
	>18 - 24	1
	>24 – 30	4
	>30	1
	<i>Subtotal</i>	<i>16</i>
California buckeye	>2 - 6	1
	>6 – 12	1
	<i>Subtotal</i>	<i>2</i>
Non-native (Holly oak, Monterey Pine, black walnut, and ornamental trees)	>2 - 6	3
	>6 – 12	3
	>12 – 18	1
	>18 - 24	-
	>24 – 30	2
	>30	1
	<i>Subtotal</i>	<i>10</i>
Invasive (tree of heaven)	>2 - 6	-
	>6 – 12	-
	>12 – 18	3
	>24 – 30	-
	>30	1
	<i>Subtotal</i>	<i>4</i>
Total		32

Detailed information about the Project's impacts can be found in the Project's CEQA MND and biological resource permit applications.

4.2 Project Conservation Measures

To completely avoid or help reduce impacts to sensitive biological resources, the Project will implement Valley Water BMPs, adhere to the conditions prescribed in the biological resource permits, and implement mitigation measures prescribed in the Project's CEQA MND.

4.2.1 Valley Water BMPs

The Project would implement the following BMPs to avoid or reduce potential impacts on biological resources⁴:

- AQ-1: Use Dust Control Measures
- AQ-2: Avoid Stockpiling Odorous Materials
- AQ-3: Reduce Construction-related NO_x Emissions
- BI-1: Remove Temporary Fill
- BI-2: Avoid Migratory Birds Impacts to Nesting
- BI-3: Avoid Migratory Birds Impacts to Nesting from Pending Construction
- BI-4: Choose Local Ecotypes of Native Plants and Appropriate Erosion-Control Seed Mixes
- BI-5: Restore Riffle/Pool Configuration of Channel Bottom
- BI-6: Avoid Animal Entry and Entrapment
- BI-7: Minimize Predator-Attraction
- BI-9: Minimize Spread of Invasive Plants
- HM-1: Comply with All Pesticide Application Restrictions and Policies
- HM-2: Comply with All Pesticide Usage Requirements
- HM-3: Comply with Restrictions on Herbicide Use in Aquatic Areas
- HM-4: Restrict Vehicle and Equipment Cleaning to Appropriate Locations
- HM-5: Ensure Proper Vehicle and Equipment Fueling and Maintenance
- HM-6: Ensure Proper Hazardous Materials Management
- HM-7: Utilize Spill Prevention Measures
- HM-8: Incorporate Fire Prevention Measures
- WQ-1: Limit Impact of Pump and Generator Operation and Maintenance
- WQ-2: Limit Impacts from Staging and Stockpiling Materials
- WQ-3: Use Seeding for Erosion Control, Weed Suppression, and Site Improvement
- WQ-4: Maintain Clean Conditions at Work Sites
- WQ-5: Manage Drilling Materials
- WQ-6: Protect Groundwater from Contaminates via Drilling
- WQ-7: Prevent Water Pollution
- WQ-10: Prevent Stormwater Pollution
- WQ-11: Manage Sanitary and Septic Waste

Detailed descriptions of the BMPs listed above are provided in **Attachment C**.

4.2.2 Biological Resource Permit Conditions

The Project includes work within waters of the United States, waters of the State, and riparian habitat. Therefore, the project will be acquiring the following permits to work in these jurisdictional areas:

- A Nationwide Permit or an Individual Permit under Section 404 of the Clean Water Act from the Army Corps of Engineers

⁴ BMPs listed in this BSA are applicable to biological resources. BMPs for cultural resources and traffic, for example, are not listed here.

- A Water Quality Certification under Section 401 of the Clean Water Act from the San Francisco Bay Regional Water Quality Control Board
- A Streambed Alteration Agreement (SAA) under California Fish and Game Code Section 1600-1606 from CDFW

All three of these permits prescribe conditions to protect jurisdictional waters and habitats and will require mitigation to offset impacts to these jurisdictional areas. In addition to being responsible for the protection and conservation of sensitive habitats, CDFW is also responsible for the protection and conservation of many of the State's fish and wildlife species. Therefore, the SAA also prescribes conditions to protect nesting birds, bats, and special-status species.

The Project will adhere to the conditions prescribed in these permits and Valley Water will confer and agree with the agencies on appropriate mitigation to offset Project impacts to jurisdictional areas prior to permit issuance.

4.2.3 CEQA MND Biological Resources Mitigation Measures

Valley Water is preparing a MND for the Project to evaluate and disclose the environmental effects of the Project under CEQA. This BSA is intended to support that evaluation, specifically the biological resources section of the MND. We are currently working with Valley Water Environmental Planner Alex Hunt on this section of the MND, including the creation of Mitigation Measures for Project impacts to biological resources that Valley Water BMPs and biological resource permit conditions are not sufficient alone to reduce impacts to less than significant levels (See Section 4.3.3).

4.3 Impact Analysis of Sensitive Biological Resources

Below we discuss our analysis of the Project's potential impacts on sensitive biological resources.

4.3.1 No Impact

Of the 22 species evaluated, 15 species were determined to be absent (See **Table 2**) within the Project area. Therefore, no impacts to the following 15 species area anticipated: western leatherwood; Loma Preita hoita; arcuate bush-mallow; woodland Monolopia; bay checkerspot butterfly; San Bruno elfin butterfly; delta smelt; California tiger salamander; California red-legged frog; western pond turtle; Ridgway's rail; California least tern; marbled murrelet; western burrowing owl; and, white-tailed kite.

Yellow warbler and yellow-breasted chat were determined to be absent as breeders, but they may forage in the Project area as summer residents or itinerant migrants. These species are only considered to be California Species of Special Concern when they are nesting and no impacts to them as nesters are expected.

Townsend's big-eared bat and pallid bat were determined to be absent as roosters, but they may forage in the Project area at night. Because the work would be occurring during the day and no roost sites are present in the Project area, impacts to these species are not expected.

4.3.2 Less Than Significant

Temporary impacts to the intermittent streambed of Calabazas Creek would occur from the temporary placement of fill during ground disturbing activities, movement of equipment through the channel, and dewatering of the channel during construction if needed. The Project would implement Valley Water BMPs BI-1 and BI-5 and comply with the applicable permit conditions so that the temporarily impacted portions of Calabazas Creek, below the OHWM, would be restored to pre-Project contours and conditions at the completion of work. Therefore, temporary impacts to the intermittent streambed are considered to be less than significant.

Several species of common birds (i.e., not special-status species or raptors) are presumed to nest in the Project area annually. Due to the seasonal work windows prescribed by the biological resource permits, Project work would be occurring throughout the nesting season. The Project would implement Valley Water BMP BI-2 and adhere to the SAA conditions pertaining to nesting birds. CDFW-Approved Qualified Biologists would conduct nesting bird surveys prior to and throughout the nesting season as necessary to identify active nests and install appropriate no-work buffer zones around them so that the nests are not impacted (i.e., destroyed or abandoned). Therefore, impacts to nesting birds are considered to be less than significant.

We identified an active Cooper's hawk nest in one out of the two large stature trees present in the Project area, a *Eucalyptus* species. This species can reuse nests and it is likely that this pair will nest at this location during Project construction. The nest tree itself will not be impacted by the Project. The Project would implement Valley Water BMP BI-2 and adhere to the SAA conditions pertaining to nesting birds. CDFW-Approved Qualified Biologists would conduct nesting bird surveys prior to and throughout the nesting season as necessary to determine whether the nest is active and install appropriate no-work buffer zones (larger for raptors) to ensure the nest is not impacted. Although considered unlikely, if other common raptor species were to establish new nests in the Project area prior to or during the work, the Project would adhere to the same conservation measures described above. If a raptor nest were established in a tree that is to be removed by the Project, the removal of the tree and any work within the no-work buffer zone would not occur until the nest is inactive. In addition, because raptor nests are protected year-round under California Fish and Game Code Section 3503.5, prior to removal of any trees with a raptor nest, Valley Water would first request permission from CDFW to dismantle the nest. Therefore, impacts to nesting common raptors are considered to be less than significant.

4.3.3 Less Than Significant With Mitigation Incorporated

Permanent impacts to the intermittent streambed, temporary and permanent impacts to riparian habitat, potential impacts to roosting western red bat(s), and impacts to San Francisco dusky-footed woodrat(s) will require Mitigation Measures to reduce impacts to less than significant levels (i.e., Valley Water BMPS and permit conditions are not sufficient alone to do so). The Valley Water Environmental Planner who is developing the Project's CEQA MND concurred that Mitigation Measures for these biological resources are warranted. We worked together with the Environmental Planner to develop the parameters below, which will be incorporated into Mitigation Measures in the CEQA MND. The exact language and specifics (e.g., impacts-to-mitigation ratios) of the Mitigation Measures will be refined through the public comment period of the CEQA MND and through negotiations with the permitting agencies.

The Project will result in temporary and permanent impacts to riparian habitat, including permanent impacts to the intermittent streambed. To ensure there is no net loss in riparian functions and services and to ensure these impacts are reduced to less than significant levels, we recommend the following parameters be developed into a Mitigation Measure to restore and/or enhance riparian habitat:

- Valley Water develops appropriate mitigation-to-impact ratios for temporary and permanent impacts to riparian habitat in agreement with the permitting agencies.
- Valley Water develops a Mitigation and Monitoring Plan (MMP) for impacts to riparian habitat that details mitigation actions necessary to ensure the mitigation ratios are being met.
- The MMP would include success criteria, as agreed upon by the permitting agencies, and adaptive management guidelines for actions to be taken if the success criteria are not met. Monitoring would be required to assess progress of the restoration and/or enhancement

actions according to the success criteria. If progress is not satisfactory, adaptive management actions (including replanting, nonnative species removal, etc.) could be implemented. The MMP would remain in force until the success criteria are met.

- The MMP would identify a suite of on-site mitigation actions to ensure the impacts are fully mitigated. The primary recommended mitigation action is the planting of 55 native riparian trees at Sites 9 and 10. Other possible mitigation actions include the removal of invasive plant species (e.g., giant reed, English ivy, and bamboo) allowing for active or passive re-vegetation of these area with native species and the removal of the sewer pipe at Site 9.

The Project could result in impacts to roosting western red bats. Western red bats are considered to be unlikely present when the work would be occurring. In general, this species is not found in the central coast in summer. However, low numbers of this species (presumably itinerant migrant males) have been detected in late spring and summer, so their presence as day roosters in the Project area when work is occurring is possible. This species is not known to raise young in Santa Clara County and is a typically solitary foliage roosting species (i.e., not a colonial roosting species) which tend to have low roost site fidelity; therefore, due to the seasonality of the work and ecology of the species, significant impacts such as impacts to maternity and/or colonial roost sites would not occur. However, if present, roosting western red bats could be impacted by work activities such as vegetation removal (i.e., day roost sites). In addition to the Project adhering to the SAA conditions pertaining to special-status species and bat habitat assessments, to ensure potential impacts to western red bat are reduced to less than significant levels we recommend the following parameters are developed into a Mitigation Measure to protect roosting western red bats:

- Preconstruction surveys are conducted by a CDFW-Approved Qualified Biologist no more than 48-hours prior to the onset of site preparation and construction activities to identify and flag any locations (e.g., trees or shrubs) where a western red bat is found roosting.
- If a roost location is found that could be disturbed or directly impacted by construction activities, the CDFW-Approved Qualified Biologist would install an appropriate no work buffer around the roost location.
- Work would not occur within the buffer until the western red bat(s) are determined by a CDFW-Approved Qualified Biologist to be absent from the area.

The Project will result in the relocation of at least one San Francisco dusky-footed woodrat lodge and the species could be further disturbed during bank rehabilitation work and equipment access. To reduce impacts to this species to less than significant levels, we recommended the following parameters are developed into a Mitigation Measure to protect woodrats and their lodges:

- Preconstruction surveys are conducted by a CDFW-Approved Qualified Biologist no more than 48-hours prior to the onset of site preparation and construction activities to identify and flag woodrat lodges.
- If woodrat lodges are found that could be disturbed by construction activities, the CDFW-Approved Qualified Biologist would install a 5-foot no work buffer around the lodges.
- If woodrat lodges cannot be avoided by construction activities, the CDFW-Approved Qualified Biologist would passively dismantle the lodge and relocate the lodge materials (i.e., sticks and logs) to the closest location possible that is outside of the construction work area. Any woodrat lodge relocations would be completed following consultation with and approval from CDFW.

Section 5. Conclusion

We determined that through compliance with the conservation measures described in this BSA, including the recommended parameters to be developed into Mitigation Measures, potential impacts to sensitive biological resources would be completely avoided, reduced, and/or mitigated for. Therefore, substantial adverse impacts to biological resources are not expected as a result of this Project and are considered to be less than significant.

Section 6. Photos

Photo 1: Upstream boundary of the Project at the Bollinger Road crossing.



Photo 2: Representative photo of Calabazas creek in the Project area.



Photo 3: Representative photo of Calabazas Creek in the Project area.



Photo 4: Representative photo of Calabazas Creek in the Project area.



Photo 5: Confluence of
Regnart Creek with
Calabazas Creek.



Photo 6: Representative
photo of Calabazas Creek.



Photo 7:
Downstream
boundary of the
Project at the
Miller Road
crossing.



Photo 8: Cooper's
hawk nest in the
Project area.



Photo 9: San Francisco dusky-footed woodrat lodge in the Project area.



Photo 10: San Francisco dusky-footed woodrat lodge in the Project area.



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Attachment A

CNPS Rare Plant Inventory 9-Quad Search

Plant List

45 matches found. Click on scientific name for details

* Calabazas Crk -
Milpitas Quad

→ No CNPSB
records
overlap project
area.

Search Criteria

Found in Santa Clara County, Found in Quads 3712251, 3712158, 3712157, 3712241, 3712148, 3712147, 3712231, 3712138 and 3712137;

[Modify Search Criteria](#) [Export to Excel](#) [Modify Columns](#) [Modify Sort](#) [Display Photos](#)

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Acanthomintha lanceolata	Santa Clara thorn-mint	Lamiaceae	annual herb	Mar-Jun	4.2	S4	G4
Androsace elongata ssp. acuta	California androsace	Primulaceae	annual herb	Mar-Jun	4.2	S3S4	G5?T3T4
Astragalus tener var. tener	alkali milk-vetch	Fabaceae	annual herb	Mar-Jun	1B.2	S2	G2T2
Balsamorhiza macrolepis	big-scale balsamroot	Asteraceae	perennial herb	Mar-Jun	1B.2	S2	G2
Calandrinia breweri	Brewer's calandrinia	Montiaceae	annual herb	(Jan)Mar-Jun	4.2	S4	G4
Campanula exigua	chaparral harebell	Campanulaceae	annual herb	May-Jun	1B.2	S2	G2
Centromadia parryi ssp. congdonii	Congdon's tarplant	Asteraceae	annual herb	May-Oct(Nov)	1B.1	S2	G3T2
Chloropyron maritimum ssp. palustre	Point Reyes bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	Jun-Oct	1B.2	S2	G4?T2
Chorizanthe robusta var. robusta	robust spineflower	Polygonaceae	annual herb	Apr-Sep	1B.1	S1	G2T1
Cirsium fontinale var. campylon	Mt. Hamilton fountain thistle	Asteraceae	perennial herb	(Feb)Apr-Oct	1B.2	S2	G2T2
Clarkia concinna ssp. automixa	Santa Clara red ribbons	Onagraceae	annual herb	(Apr)May-Jun(Jul)	4.3	S3	G5?T3
Collinsia multicolor	San Francisco collinsia	Plantaginaceae	annual herb	(Feb)Mar-May	1B.2	S2	G2
Cypripedium fasciculatum	clustered lady's-slipper	Orchidaceae	perennial rhizomatous herb	Mar-Aug	4.2	S4	G4
Delphinium californicum ssp. interius	Hospital Canyon larkspur	Ranunculaceae	perennial herb	Apr-Jun	1B.2	S3	G3T3
Dirca occidentalis	western leatherwood	Thymelaeaceae	perennial deciduous shrub	Jan-Mar(Apr)	1B.2	S2	G2
Dudleya abramsii ssp. setchellii	Santa Clara Valley dudleya	Crassulaceae	perennial herb	Apr-Oct	1B.1	S2	G4T2
Eriophyllum jepsonii	Jepson's woolly	Asteraceae	perennial herb	Apr-Jun	4.3	S3	G3

	sunflower						
<u>Eryngium aristulatum</u> <u>var. hooveri</u>	Hoover's button-celery	Apiaceae	annual / perennial herb	(Jun)Jul(Aug)	1B.1	S1	G5T1
<u>Extriplex joaquinana</u>	San Joaquin spearscale	Chenopodiaceae	annual herb	Apr-Oct	1B.2	S2	G2
<u>Fritillaria agrestis</u>	stinkbells	Liliaceae	perennial bulbiferous herb	Mar-Jun	4.2	S3	G3
<u>Fritillaria liliacea</u>	fragrant fritillary	Liliaceae	perennial bulbiferous herb	Feb-Apr	1B.2	S2	G2
<u>Hoita strobilina</u> - for US	Loma Prieta hoita	Fabaceae	perennial herb	May-Jul(Aug-Oct)	1B.1	S2	G2
<u>Iris longipetala</u>	coast iris	Iridaceae	perennial rhizomatous herb	Mar-May	4.2	S3	G3
<u>Lasthenia conjugens</u>	Contra Costa goldfields	Asteraceae	annual herb	Mar-Jun	1B.1	S1	G1
<u>Leptosiphon acicularis</u>	bristly leptosiphon	Polemoniaceae	annual herb	Apr-Jul	4.2	S4?	G4?
<u>Leptosiphon ambiguus</u>	serpentine leptosiphon	Polemoniaceae	annual herb	Mar-Jun	4.2	S4	G4
<u>Lessingia hololeuca</u>	woolly-headed lessingia	Asteraceae	annual herb	Jun-Oct	3	S3?	G3?
<u>Lessingia micradenia</u> <u>var. glabrata</u>	smooth lessingia	Asteraceae	annual herb	(Apr-Jun)Jul-Nov	1B.2	S2	G2T2
<u>Malacothamnus arcuatus</u> y for US	arcuate bush-mallow	Malvaceae	perennial evergreen shrub	Apr-Sep	1B.2	S2	G2Q
<u>Malacothamnus hallii</u>	Hall's bush-mallow	Malvaceae	perennial evergreen shrub	(Apr)May-Sep(Oct)	1B.2	S2	G2
<u>Micropus amphibolus</u>	Mt. Diablo cottonweed	Asteraceae	annual herb	Mar-May	3.2	S3S4	G3G4
<u>Mielichhoferia elongata</u>	elongate copper moss	Mielichhoferiaceae	moss		4.3	S4	G5
<u>Monardella antonina</u> <u>ssp. antonina</u>	San Antonio Hills monardella	Lamiaceae	perennial rhizomatous herb	Jun-Aug	3	S1S3	G4T1T3Q
<u>Monolopia gracilens</u> for US	woodland woollythreads	Asteraceae	annual herb	(Feb)Mar-Jul	1B.2	S3	G3
<u>Navarretia prostrata</u>	prostrate vernal pool navarretia	Polemoniaceae	annual herb	Apr-Jul	1B.1	S2	G2
<u>Plagiobothrys glaber</u>	hairless popcornflower	Boraginaceae	annual herb	Mar-May	1A	SH	GH
<u>Puccinellia simplex</u>	California alkali grass	Poaceae	annual herb	Mar-May	1B.2	S2	G3
<u>Senecio aphanactis</u>	chaparral ragwort	Asteraceae	annual herb	Jan-Apr(May)	2B.2	S2	G3
<u>Sidalcea malachroides</u>	maple-leaved checkerbloom	Malvaceae	perennial herb	(Mar)Apr-Aug	4.2	S3	G3
<u>Streptanthus albidus</u> <u>ssp. albidus</u>	Metcalf Canyon jewelflower	Brassicaceae	annual herb	Apr-Jul	1B.1	S1	G2T1
<u>Streptanthus albidus</u> <u>ssp. peramoenus</u>	most beautiful jewelflower	Brassicaceae	annual herb	(Mar)Apr-Sep(Oct)	1B.2	S2	G2T2
<u>Stuckenia filiformis</u> ssp. alpina	slender-leaved pondweed	Potamogetonaceae	perennial rhizomatous herb (aquatic)	May-Jul	2B.2	S3	G5T5
<u>Suaeda californica</u>	California seablite	Chenopodiaceae	perennial evergreen shrub	Jul-Oct	1B.1	S1	G1

Trifolium hydrophilum	saline clover	Fabaceae	annual herb	Apr-Jun	1B.2	S2	G2
Tropidocarpum capparideum	caper-fruited tropidocarpum	Brassicaceae	annual herb	Mar-Apr	1B.1	S1	G1

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Questions and Comments

rareplants@cnps.org

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Attachment B
USFWS IPAC System Report

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Santa Clara County, California



Local office

Sacramento Fish And Wildlife Office

☎ (916) 414-6600

📅 (916) 414-6713

Federal Building

2800 Cottage Way, Room W-2605

Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Birds

NAME	STATUS
California Clapper Rail <i>Rallus longirostris obsoletus</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4240	Endangered
California Least Tern <i>Sterna antillarum browni</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8104	Endangered
Marbled Murrelet <i>Brachyramphus marmoratus</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/4467	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog <i>Rana draytonii</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander <i>Ambystoma californiense</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

NAME	STATUS
Delta Smelt <i>Hypomesus transpacificus</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
Bay Checkerspot Butterfly <i>Euphydryas editha bayensis</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/2320	Threatened
San Bruno Elfin Butterfly <i>Callophrys mossii bayensis</i> There is proposed critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/3394	Endangered

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE

TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Allen's Hummingbird *Selasphorus sasin*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9637>

Breeds Feb 1 to Jul 15

Bald Eagle *Haliaeetus leucocephalus*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1626>

Breeds Jan 1 to Aug 31

Clark's Grebe *Aechmophorus clarkii*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds Jan 1 to Dec 31

Common Yellowthroat *Geothlypis trichas sinuosa*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

<https://ecos.fws.gov/ecp/species/2084>

Breeds May 20 to Jul 31

Golden Eagle *Aquila chrysaetos*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1680>

Breeds Jan 1 to Aug 31

Lawrence's Goldfinch *Carduelis lawrencei*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9464>

Breeds Mar 20 to Sep 20

Nuttall's Woodpecker *Picoides nuttallii*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

<https://ecos.fws.gov/ecp/species/9410>

Breeds Apr 1 to Jul 20

Oak Titmouse *Baeolophus inornatus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9656>

Breeds Mar 15 to Jul 15

Rufous Hummingbird *selasphorus rufus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/8002>

Breeds elsewhere

Song Sparrow *Melospiza melodia*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Breeds Feb 20 to Sep 5

Spotted Towhee *Pipilo maculatus clementae*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

<https://ecos.fws.gov/ecp/species/4243>

Breeds Apr 15 to Jul 20

Wrentit *Chamaea fasciata*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds Mar 15 to Aug 10

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (I)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (—)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Common Yellowthroat
 BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



Golden Eagle
 Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)



Lawrence's Goldfinch
 BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



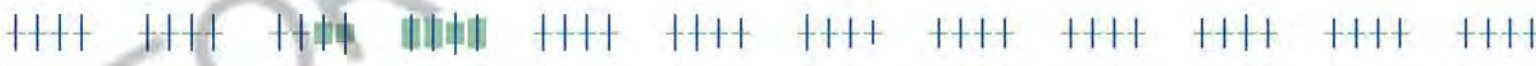
Nuttall's Woodpecker
 BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



Oak Titmouse
 BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Rufous Hummingbird
 BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Song Sparrow

BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

**Spotted Towhee**

BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

**Wrentit**

BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) and/or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [E-bird Explore Data Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

RIVERINE

[R4SBC](#)

[R4SBCx](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Attachment C

Valley Water BMPs Applicable to Biological Resources

Valley Water BMPs Applicable to Biological Resources

Air Quality	
AQ-1 Use Dust Control Measures	The following Bay Area Air Quality Management District (BAAQMD) Dust Control Measures will be implemented: 1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day; 2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered; 3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited; 4. Water used to wash the various exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, etc.) will not be allowed to enter waterways; 5. All vehicle speeds on unpaved roads shall be limited to 15 mph; 6. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used; 7. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations), and this requirement shall be clearly communicated to construction workers (such as verbiage in contracts and clear signage at all access points); 8. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications, and all equipment shall be checked by a certified visible emissions evaluator; 9. Correct tire inflation shall be maintained in accordance with manufacturer's specifications on wheeled equipment and vehicles to prevent excessive rolling resistance; and, 10. Post a publicly visible sign with a telephone number and contact person at the lead agency to address dust complaints; any complaints shall be responded to and take corrective action within 48 hours. In addition, a BAAQMD telephone number with any applicable regulations will be included.
AQ-2 Avoid Stockpiling Odorous Materials	Materials with decaying organic material, or other potentially odorous materials, will be handled in a manner that avoids impacting residential areas and other sensitive receptors, including: 1. Avoid stockpiling potentially odorous materials within 1,000 feet of residential areas or other odor sensitive land uses; and 2. Odorous stockpiles will be disposed of at an appropriate landfill.
AQ-3 Reduce Construction-related NO_x Emissions	Nitrogen oxide (NO_x) construction mitigation measures recommended by BAAQMD will be implemented, including the following: • Minimize idling time either by shutting equipment off when not in use or by reducing the time of idling to 5 minutes [required by 13 CCR Sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site. • Maintain all construction equipment in proper working condition in accordance with manufacturer's specifications. The equipment must be checked by a certified mechanic and determined to be running in proper condition before it is operated.

	● Provide a plan for approval by Valley Water demonstrating that the construction contractors' heavy-duty off-road vehicles (50 horsepower or more) to be used in Project construction, including owned, leased, and subcontractor vehicles, will achieve a Project-wide fleet-average 20 percent NO_x reduction and 45 percent particulate reduction compared to the most recent California Air Resources Board fleet average. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available. ● Ensure that emissions from Valley Water's construction contractors' off-road diesel-powered equipment used on the Project site do not exceed 40 percent opacity for more than three minutes in any one hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) will be repaired immediately. ● A visual survey of all in-operation equipment will be made at least weekly.
Biological Resources	
BI-1 Remove Temporary Fill	Temporary fill materials, such as for diversion structures or cofferdams, will be removed upon finishing the work or as appropriate. The creek channels and banks will be re-contoured to match pre-construction conditions to the extent possible. Low-flow channels within non-tidal streams will be contoured to facilitate fish passage and will emulate the preconstruction conditions as closely as possible, within the finished channel topography.
BI-2 Avoid Impacts to Nesting Migratory Birds	Prior to the start of construction activities that begin during the migratory bird nesting period (between January 15 and August 31 of any year), Valley Water shall retain a qualified wildlife biologist to conduct a survey for nesting raptors and migratory birds that could nest along the Project corridor. Surveys will cover all suitable raptor and migratory bird nesting habitat that will be impacted directly or by disturbance, including habitat potentially used by ground-nesting migratory bird species. All migratory bird nesting surveys will be performed no more than 7 days prior to any Project-related activity that could pose the potential to affect migratory birds. With the exception of raptor nests, inactive bird nests may be removed. No birds, nests with eggs, or nests with hatchlings will be disturbed.
BI-3 Avoid Impacts to Nesting Migratory Birds from Pending Construction	Nesting exclusion devices may be installed to prevent potential establishment or occurrence of nests in areas where construction activities would occur. All nesting exclusion devices will be maintained throughout the nesting season or until completion of work in an area makes the devices unnecessary. All exclusion devices will be removed and disposed of when work in the area is complete.
BI-4 Choose Local Ecotypes Of Native Plants and Appropriate Erosion-Control Seed Mixes	Whenever native species are prescribed for installation the following steps will be taken by a qualified biologist or vegetation specialist: 1. Evaluate whether the plant species currently grows wild in Santa Clara County; and, 2. If so, the qualified biologist or vegetation specialist will determine if any need to be local natives, i.e. grown from propagules collected in the same or adjacent watershed, and as close to the Project site as feasible. Also, consult a qualified biologist or vegetation specialist to determine which seeding option is ecologically appropriate and effective, specifically: 1. For areas that are disturbed, an erosion control seed mix may be used consistent with the Valley Water <i>Guidelines and Standards for Land Use Near Streams, Design Guide 5, 'Temporary Erosion Control Options.'</i> 2. In areas with remnant native plants, the qualified biologist or vegetation specialist may choose an abiotic application instead, such as an erosion control blanket or seedless hydro-mulch and tackifier

	to facilitate passive revegetation of local native species. If a gravel has been used to prevent soil compaction, this material may be left in place [if ecologically appropriate] instead of seeding. Seed selection shall be ecologically appropriate as determined by a qualified biologist, per <i>Guidelines and Standards for Land Use Near Streams, Design Guide 2: Use of Local Native Species</i>.
BI-5 Restore Riffle/Pool Configuration of Channel Bottom	The channel bottom shall be re-graded at the completion of work and restored to as close to the pre-Project conditions and contours as possible.
BI-6 Avoid Animal Entry and Entrapment	All pipes, hoses, or similar structures less than 12 inches diameter will be closed or covered to prevent animal entry. All construction pipes, culverts, or similar structures, greater than 2-inches diameter, stored at a construction site overnight, will be inspected thoroughly for wildlife by a qualified biologist or properly trained construction personnel before the pipe is buried, capped, used, or moved. If inspection indicates presence of sensitive or State- or federally listed species inside stored materials or equipment, work on those materials will cease until a qualified biologist determines the appropriate course of action. To prevent entrapment of animals, all excavations, steep-walled holes or trenches more than 6-inches deep will be secured against animal entry at the close of each day. Any of the following measures may be employed, depending on the size of the hole and method feasibility: 1. Hole to be securely covered (no gaps) with plywood, or similar materials, at the close of each working day, or any time the opening will be left unattended for more than one hour; or 2. In the absence of covers, the excavation will be provided with escape ramps constructed of earth or untreated wood, sloped no steeper than 2:1, and located no farther than 15 feet apart; or 3. In situations where escape ramps are infeasible, the hole or trench will be surrounded by filter fabric fencing or a similar barrier with the bottom edge buried to prevent entry.
BI-7 Minimize Predator-Attraction	Remove trash daily from the worksite to avoid attracting potential predators to the site.
BI-9 Minimize Spread of Invasive Plants	The spread of invasive nonnative plant species and plant pathogens will be avoided or minimized by implementing the following measures: 1. Construction equipment will arrive at the Project clean and free of soil, seed, and plant parts to reduce the likelihood of introducing new weed species. 2. Any imported fill material, soil amendments, gravel, etc., required for construction activities that will be placed within the upper 12 inches of the ground surface will be free of vegetation and plant material. 3. Certified weed-free imported erosion control materials (or rice straw in upland areas) will be used exclusively.
Hazards and Hazardous Materials	
HM-1 Comply with All Pesticide Application Restrictions and Policies	Pesticide products are to be used only after an assessment has been made regarding environmental, economic, and public health aspects of each of the alternatives by the Valley Water Pest Control Advisor (PCA). All pesticide use will be consistent with approved product specifications. Applications will be made by, or under the direct supervision of, State Certified applicators under the direction of, or in a manner approved by the PCA.

HM-2 Comply with All Pesticide Usage Requirements	All projects that propose ongoing use of pesticides will comply with all provisions of Q751D02: Control and Oversight of Pesticide Use, including, but not necessarily limited to the following: 1. All pest control methods will be performed only after a written Pest Control Recommendation for use has been prepared by the District's PCA in accordance with requirements of the California Food and Agricultural Code. 2. F751D01 – Pest Control Recommendation & Spray Operators Report will be completed for each pesticide application.
HM-3 Comply with Restrictions on Herbicide Use in Aquatic Areas	Consistent with provisions of Q751D02: Control and Oversight of Pesticide Use, only herbicides and surfactants registered for aquatic use will be applied within the banks of channels within 20 feet of any water present. Furthermore, aquatic herbicide use will be limited to June 15 through October 31 with an extension through December 31 or until the first occurrence of local rainfall greater than 0.5 inches is forecasted within a 24-hour period from planned application events according to the National Weather Service. If rain is forecast, then application of aquatic herbicide will be rescheduled.
HM-4 Restrict Vehicle and Equipment Cleaning to Appropriate Locations	Vehicles and equipment may be washed only at approved areas. No washing of vehicles or equipment will occur in the Project area.
HM-5 Ensure Proper Vehicle and Equipment Fueling and Maintenance	No fueling or servicing will be done in a waterway or immediate flood plain, unless equipment stationed in these locations is not readily relocated (i.e., pumps, generators). 1. For stationary equipment that must be fueled or serviced on site, containment will be provided in such a manner that any accidental spill will not be able to come in direct contact with soil, surface water, or the storm drainage system. 2. All fueling or servicing done at the site will provide containment to the degree that any spill will be unable to enter any waterway or damage riparian vegetation. 3. All vehicles and equipment will be kept clean. Excessive build-up of oil and grease will be prevented. 4. All equipment used in the Bay or flood basin will be inspected for leaks each day prior to initiation of work. Maintenance, repairs, or other necessary actions will be taken to prevent or repair leaks, prior to use. 5. If emergency repairs are required in the field, only those repairs necessary to move equipment to a more secure location will be done in a waterway or flood plain.
HM-6 Ensure Proper Hazardous Materials Management	Measures will be implemented to ensure that hazardous materials are properly handled and the quality of water resources is protected by all reasonable means. 1. Prior to entering the work site, all field personnel will know how to respond when toxic materials are discovered. 2. Contact of chemicals with precipitation will be minimized by storing chemicals in watertight containers with appropriate secondary containment to prevent any spillage or leakage. 3. Petroleum products, chemicals, cement, fuels, lubricants, and non-storm drainage water or water contaminated with the aforementioned materials will not contact soil and not be allowed to enter surface waters or the storm drainage system. 4. All toxic materials, including waste disposal containers, will be covered when they are not in use, and located as far away as possible from a direct connection to the storm drainage system or surface water. 5. Quantities of toxic materials, such as equipment fuels and lubricants, will be stored with secondary containment that is capable of containing 110 percent of the primary container(s).

	6. The discharge of any hazardous or non-hazardous waste as defined in Division 2, Subdivision 1, Chapter 2 of the California Code of Regulations will be conducted in accordance with applicable State and federal regulations. 7. In the event of any hazardous material emergencies or spills, personnel will call the Chemical Emergencies/Spills Hotline at 1-800-510-5151.
HM-7 Utilize Spill Prevention Measures	Prevent the accidental release of chemicals, fuels, lubricants, and non-storm drainage water following these measures: 1. Field personnel will be appropriately trained in spill prevention, hazardous material control, and cleanup of accidental spills; 2. Equipment and materials for cleanup of spills will be available on site, and spills and leaks will be cleaned up immediately and disposed of according to applicable regulatory requirements; 3. Field personnel will ensure that hazardous materials are properly handled and natural resources are protected by all reasonable means; 4. Spill prevention kits will always be in close proximity when using hazardous materials (e.g., at crew trucks and other logical locations), and all field personnel will be advised of these locations; and, 5. The work site will be routinely inspected to verify that spill prevention and response measures are properly implemented and maintained.
HM-6 Incorporate Fire Prevention Measures	1. All earthmoving and portable equipment with internal combustion engines will be equipped with spark arrestors. 2. During the high fire danger period (April 1–December 1), work crews will have appropriate fire suppression equipment available at the work site. 3. An extinguisher shall be available at the project site at all times when welding or other repair activities that can generate sparks (such as metal grinding) is occurring. 4. Smoking shall be prohibited except in designated staging areas and at least 20 feet from any combustible chemicals or vegetation.
Hydrology and Water Quality	
WQ-1 Limit Impact of Pump and Generator Operation and Maintenance	Pumps and generators will be maintained and operated in a manner that minimizes impacts to water quality and aquatic species. 1. Pumps and generators will be maintained according to manufacturers' specifications to regulate flows to prevent dry-back or washout conditions. 2. Pumps will be operated and monitored to prevent low water conditions, which could pump muddy bottom water, or high-water conditions, which creates ponding. 3. Pump intakes will be screened to prevent uptake of fish and other vertebrates. Pumps will be screened according to NMFS criteria. 4. Sufficient back-up pumps and generators will be on site to replace defective or damaged pumps and generators.
WQ-2 Limit Impacts from Staging and Stockpiling Materials	1. To protect on site vegetation and water quality, staging areas should occur on access roads, surface streets, or other disturbed areas that are already compacted and only support ruderal vegetation. Similarly, all equipment and materials (e.g., road rock and spoils) will be contained within the existing access roads or other pre-determined staging areas. 2. Building materials and other Project-related materials, including chemicals and sediment, will not be stockpiled or stored where they could spill into water bodies.

	3. No runoff from the staging areas may be allowed to enter water ways without being subjected to adequate filtration (e.g., vegetated buffer, swale, hay wattles or bales, silt screens). 4. The discharge of decant water to water ways from any on site temporary sediment stockpile or storage areas is prohibited. 5. During the wet season, no stockpiled soils will remain exposed, unless surrounded by properly installed and maintained silt fencing or other means of erosion control. During the dry season; exposed, dry stockpiles will be watered, enclosed, covered, or sprayed with non-toxic soil stabilizers.
WQ-3 Use Seeding for Erosion Control, Weed Suppression, and Site Improvement	Disturbed areas shall be seeded with native seed as soon as is appropriate after activities are complete. An erosion control seed mix will be applied to exposed soils down to the ordinary high water mark of the flood basin and the mean high higher tide line on the Bay side of the work area. The seed mix should consist of California native grasses, (for example <i>Hordeum brachyantherum</i>; <i>Elymus glaucus</i>; and annual <i>Vulpia microstachyes</i>) or annual, sterile hybrid seed mix (e.g., Regreen™, a wheat x wheatgrass hybrid).
WQ-4 Maintain Clean Conditions at Work Sites	The work site, areas adjacent to the work site, and access roads will be maintained in an orderly condition, free and clear from debris and discarded materials on a daily basis. Personnel will not sweep, grade, or flush surplus materials, rubbish, debris, or dust into storm drains or waterways. Materials or equipment left on the site overnight will be stored as inconspicuously as possible and will be neatly arranged. Any materials and equipment left on the site overnight will be stored to avoid erosion, leaks, or other potential impacts to water quality Upon completion of work, all building materials, debris, unused materials, concrete forms, and other construction-related materials will be removed from the work site.
WQ-5 Manage Drilling Materials	All materials or waters generated during drilling will be safely handled, properly managed, and disposed of according to all applicable federal, State, and local statutes regulating such. In no case will these materials and/or waters be allowed to enter, or potentially enter waterways. Such materials/waters must not be allowed to move off the property where the work is being completed.
WQ-6 Protect Groundwater from Contaminates via Drilling	Any substances or materials that may degrade groundwater quality will not be allowed to enter any boring. Lubricants used on drill bits, drill pipe, or tremie pipe will not be comprised of oily or greasy substances or other materials that may degrade groundwater quality. Well openings or entrances will be sealed or secured in such a way as to prevent the introduction of contaminants.
WQ-7 Prevent Water Pollution	Oily, greasy, or sediment laden substances or other material that originate from the project operations and may degrade the quality of surface water or adversely affect aquatic life, fish, or wildlife will not be allowed to enter, or be placed where they may later enter, any waterway. The project will not increase the turbidity of any watercourse flowing past the construction site by taking all necessary precautions to limit the increase in turbidity as follows: 1. where natural turbidity is between 0 and 50 Nephelometric Turbidity Units (NTU), increases will not exceed 5 percent; 2. where natural turbidity is greater than 50 NTU, increases will not exceed 10 percent; 3. where the receiving water body is a dry creek bed or storm drain, waters in excess of 50 NTU will not be discharged from the project. Water turbidity changes will be monitored. The discharge water measurements will be made at the point where the discharge water exits the water control system for tidal sites and 100 feet downstream of the discharge point for non-tidal sites. Natural watercourse turbidity measurements will be made in the receiving water 100 feet upstream of the discharge site. Natural watercourse turbidity measurements will be made prior to initiation of project discharges, preferably at least 2 days prior to commencement of operations.

WQ-10 Prevent Stormwater Pollution	To prevent stormwater pollution, the applicable measures from the following list will be implemented: 1. Soils exposed due to Project activities will be seeded and stabilized using hydroseeding, straw placement, mulching, and/or erosion control fabric. These measures will be implemented such that the site is stabilized and water quality protected prior to significant rainfall. In creeks, the channel bed and areas below the Ordinary High Water Mark are exempt from this BMP. 2. The preference for erosion control fabrics will be to consist of natural fibers; however, steeper slopes and areas that are highly erodible may require more structured erosion control methods. No non-porous fabric will be used as part of a permanent erosion control approach. Plastic sheeting may be used to temporarily protect a slope from runoff, but only if there are no indications that special-status species would be impacted by the application. 3. Erosion control measures will be installed according to manufacturer's specifications. 4. To prevent stormwater pollution, the appropriate measures from, but not limited to, the following list will be implemented: • Silt Fences • Straw Bale Barriers • Brush or Rock Filters • Storm Drain Inlet Protection • Sediment Traps or Sediment Basins • Erosion Control Blankets and/or Mats • Soil Stabilization (i.e. tackified straw with seed, jute or geotextile blankets, etc.) • Straw mulch. 5. All temporary construction-related erosion control methods shall be removed at the completion of the project (e.g. silt fences). 6. Surface barrier applications installed as a method of animal conflict management, such as chain link fencing, woven geotextiles, and other similar materials, will be installed no longer than 300 feet, with at least an equal amount of open area prior to another linear installation.
WQ-11 Manage Sanitary and Septic Waste	Temporary sanitary facilities will be located in compliance with California Division of Occupational Safety and Health (Cal/OSHA) regulation 8 California Code of Regulations 1526. All temporary sanitary facilities will be located where overflow or spillage will not enter a watercourse directly (overbank) or indirectly (through a storm drain).

Appendix D

Aquatic Resources Delineation Report

Aquatic Resource Delineation Report

Calabazas Creek Rehabilitation Project
Cupertino, Santa Clara County, California

Prepared for:

Santa Clara Valley Water District
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San Jose, California 95118
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Prepared by:

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Date: October 23, 2018

WRA Project #: 28204



Executive Summary

On September 18 and 19, 2018, an aquatic resource delineation was conducted for the Santa Clara Valley Water District's (District or SCVWD) Calabazas Creek Rehabilitation Project (project), in Cupertino, Santa Clara County, California. The delineation was conducted in accordance with the 1987 "Corps of Engineers Wetland Delineation Manual" (Corps 1987), Version 2.0 of the Arid West regional supplement (Corps 2008), and "A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States" (Lichvar and McColley 2008).

The survey area, which extends to residential fence lines, is 10.86 acres and includes a 4,714-foot reach of Calabazas Creek and an approximately 125-foot channelized reach of Regnart Creek that exhibit an OHWM and are hydrologically connected to the South San Francisco Bay. In the survey area, Calabazas and Regnart Creeks' stream flow is intermittent and no flowing water was observed in the channels at the time of the September survey. The Calabazas Creek channel bed is largely unvegetated and mature mixed riparian forest of coast live oak (*Quercus agrifolia*), valley oak (*Quercus lobata*), holly oak (*Quercus ilex*), black walnut (*Juglans hindsii*), and buckeye (*Aesculus californica*) occur on channel banks. The mature canopy shades much of the channel. Ordinary high water mark indicators include breaks in bank slope, changes in vegetation percent cover, and the presence of wrack, algal crust, water staining, and scour. Several small areas of hydrophytic vegetation, dominated by smartweed species (*Persicaria* spp.), on entisols are present as in-channel vegetation but were determined to not meet three-parameter wetland characteristics.

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Acronyms and Abbreviations

CA-85	California State Route 85
Corps	United States Army Corps of Engineers
CWA	Clean Water Act
District	Santa Clara Valley Water District
FAC	Facultative
FACU	Facultative Upland
FACW	Facultative Wetland
FGDC	Federal Geographic Data Committee
GIS	Geographic Information System
GPS	Global Positioning System
I-280	Interstate 280
NETR	Nationwide Environmental Title Research
NI	No Indicator Status
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OBL	Obligate
OHWM	Ordinary High Water Mark
PRISM	Parameter-Elevation Regressions on Independent Slopes Model
Project	Calabazas Creek Rehabilitation Project
SCURVPPP	Santa Clara Valley Urban Pollution Prevention Program
SCVWD	Santa Clara Valley Water District
UPL	Upland
US-101	U.S. Route 101
USFWS	U.S. Fish and Wildlife Service
WRA	WRA, Inc.

Chapter 1. Introduction

WRA, Inc. (WRA) has been retained by the Santa Clara Valley Water District (District or SCVWD) to conduct a delineation of aquatic resources for the Calabazas Creek Rehabilitation Project (project), which would occur along the Calabazas Creek channel in Cupertino, Santa Clara County, California between Miller Avenue and Bollinger Road. As a part of the project, the District is proposing bank stabilization, which would include buried rip-rap reinforcement with plantings on top. Additionally, the project would include some riparian corridor enhancements by conducting invasive weed removal. On September 18 and 19, 2018, WRA conducted a routine aquatic resource delineation in the project survey area to determine the presence of potential wetlands and non-wetland waters subject to federal jurisdiction under Section 404 of the Clean Water Act (CWA). This report presents the results of this aquatic resource delineation, which are subject to verification by the U.S. Army Corps of Engineers (Corps), San Francisco District.

The District contact for the Project is:

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The 10.86-acre aquatic resource survey area includes the Calabazas Creek channel and areas above top of bank on the east and west side of the stream corridor, up to the surrounding residential homes and park fence lines. The survey area also includes the confluence of Calabazas Creek and Regnart Creek and extends upstream along Regnart Creek for approximately 125 feet. The survey area is bounded by Miller Avenue to the north and Bollinger Road to the south. The survey area is depicted in Appendix A.

The purpose of this report is to identify and describe the aquatic resources in the survey area prior to proposed creek rehabilitation work to stabilize erosional features along the streambanks. This report facilitates efforts to document aquatic resource boundary determinations for review by regulatory authorities and provide background information.

Chapter 2. Location

The proposed project area is along the Calabazas Creek channel occurring in Cupertino, Santa Clara County, California. The channel runs roughly northwest-southeast through residential and developed areas. The survey area is bounded to the north (downstream end) by the Miller Avenue crossing and at the southern (upstream) end by the Bollinger Road crossing. This survey area is in Township 7S and Range 1W of the U.S. Geological Survey (USGS) Cupertino Quadrangle, latitudes between 37.31011° and 37.31963° north and longitudes between -122.01412° and -122.01998° west. The vicinity of the survey area is depicted in Figures 1 and 2 (Appendix B).

In the survey area the Calabazas Creek corridor is largely restricted from public access by residential fences and chain link fencing with gated access controlled by the District. The channel can be accessed from the eastern bank by an emergency creek access gate north of an athletic field at Creekside Park (10455 Miller Avenue, Cupertino, California 95014). District permission is required for access to Calabazas Creek.

Directions to the survey area from San Francisco, California are as follows:

- Take U.S. Route 101 (US-101) South toward San Jose;
- From US-101, take exit 389B to California State Route 85 (CA-85) South towards Santa Cruz/Cupertino;
- From CA-85, take exit 19A to merge onto Interstate 280 (I-280) South towards San Jose;
- From I-280, take exit 10 for Wolfe Road;
- Turn right on Wolfe Road and continue for approximately half a mile;
- Continue onto Miller Avenue for approximately half a mile;
- Turn right into the Creekside Park parking lot (10455 Miller Avenue);
- Follow the bicycle path north of the parking lot to the northwestern edge of the athletic fields. The emergency creek access gate is located next to the bicycle path.

Chapter 3. Methods

An aquatic resource delineation was conducted in the survey area on September 18 and 19, 2018, by Elan Alford, a plant ecologist at WRA with six years of experience, with field assistance from Rei Scampavia, a biologist at WRA. The delineation was conducted in accordance with the 1987 “Corps of Engineers Wetland Delineation Manual” (Corps 1987), Version 2.0 of the Arid West regional supplement (Corps 2008), and “A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States” (Lichvar and McColley 2008).

Prior to the field delineation, the following informational resources were reviewed:

- Current and historic aerial imagery from Google Earth (2018) and Nationwide Environmental Title Research (NETR 2018);
- County topographic geographic information system (GIS) files;
- National Wetland Inventory (NWI) maps (USFWS 2018; see Appendix B);
- Spatial precipitation estimate data from the Parameter-Elevation Regressions on Independent Slopes Model (PRISM) (PRISM 2018); and
- Soil map for Santa Clara Area, California from the Natural Resources Conservation Service’s Web Soil Survey (NRCS 2018).

During the field delineation of the 10.86-acre survey area, the entire channel bottom was traversed by foot. It was determined that Calabazas and Regnart Creeks were the only potential waters of the U.S. in the survey area. Five OHWM stream transects were selected along the survey area (see Appendix E). One wetland delineation data sheet was completed in accordance with Lichvar and McColley (2008) (see Appendix E), and photographs of representative conditions were taken (see Appendix C). Notes were taken on the data sheets of general resource conditions. A global positioning system (GPS) was used to mark the OHWM at each delineation transect. Additional OHWM GPS data was collected along other portions of the channel during the survey. A series of patches of hydrophytic vegetation, dominated by smartweed species (*Persicaria* sp.), occurred in several spots on riverwash entisols below the OHWM and were included in the intermittent stream.

Digitizing of the delineation in the office used the field observations, County topographic data (one foot contours), and aerial imagery to extrapolate the OHWM to the entire survey area. Mapped waters were classified according to the Federal Geographic Data Committee’s (FGDC) “Classification of Wetlands and Deepwater Habitats of the United States” (FGDC 2013), which is adapted from Cowardin et al. (1979). The aquatic resource delineation map was prepared in accordance with the “Updated Map and Drawing Standards for the South Pacific Division Regulatory Program” (Corps 2016).

4.1 Landscape Setting

The survey area is along a section of Calabazas Creek between Miller Avenue and Bollinger Road. In the survey area, Regnart Creek joins Calabazas Creek. The channel reach in the survey area is an incised feature located in a relatively flat urban setting. Calabazas Creek flows northwest into Guadalupe Slough, which empties into South San Francisco Bay.

Much the Calabazas Creek watershed occurs in highly urbanized areas, and over half of open channel miles have been engineered. There are approximately 14 miles of engineered channel and 13 miles of natural creek bed (SCVURPPP 2018). A review of historic aerial photos determined that the survey area vicinity was previously agricultural fields that were converted to residential development in the 1950s and 1960s. In the survey area, Calabazas and Regnart Creeks are currently surrounded by a highly-developed, residential area.

Areas surrounding the survey area consist of asphalt, pavement, buildings, and managed open spaces (lawns, private gardens, and a City park with athletic fields). Miller Avenue, a paved four-lane road, crosses Calabazas Creek at the northeastern survey area border (downstream). Bollinger Road, a paved four-lane road, crosses Calabazas Creek at the southwestern survey area border (upstream). Private residences and urban development line the top of bank to the east and west of Calabazas Creek. Continuous fencing occurs at and near the top of bank of the entire survey area, limiting access to the channel from surrounding areas.

The proposed project is designed to stabilize erosional features located on the creek banks. Prior work for the Calabazas Creek Flood Control Protection Project involved District repair of 14 severely eroding banks along the creek corridor between Miller Avenue and Wardell Road (SCVWD 2018), which includes this survey area. In the survey area several bank segments on the east and west sides have already been stabilized with a combination of rip-rap, sack-crete, and log revetment, and several other features have been temporarily stabilized with tarps and sandbags.

During the field delineation, climate conditions were typical for the season. It was clear, sunny, and warm. It had not rained for approximately five months prior to the delineation. The Calabazas and Regnart Creek channels were dry (see Appendix C).

4.2 Aquatic Resources

Aquatic resources delineated in the survey area are summarized in Table 1 and mapped in Appendix A. The 10.86-acre survey area includes 2.21 acres of Calabazas and Regnart Creeks, which exhibit an OHWM and ultimately flow to the South San Francisco Bay. In the survey area, Calabazas and Regnart Creeks are classified as intermittent riverine features, according to the Federal Geographic Data Committee (FGDC) (2013), and as riverine by NWI (see Appendix B).

Water flow in Calabazas Creek is typically concentrated in a single-thread, relatively low-gradient channel below the OHWM elevation (see photographs in Appendix C). This channel is largely unvegetated with a bed of cobble, gravel and coarse sand. Many areas of the creek bed were covered by a dry algal mat at the time of the survey. The segments of Calabazas Creek that pass under Miller Avenue and Bollinger Road have cement channel sides and beds, and the segment of Regnart Creek that feeds into Calabazas Creek is a trapezoidal channel with cement sides and an earthen bed. Regnart Creek is approximately eight feet higher in elevation than Calabazas Creek, and flows into Calabazas Creek over a cement apron. This change in elevation has resulted

in a scour hole in the Calabazas Creek bed at the point where it is joined by Regnart Creek.

The mature riparian tree canopy shades much of the channel and the channel bed is largely unvegetated. In some channel-bed locations smartweed-dominated areas of in-channel hydrophytic vegetation occur on entisols along and below the OHWM, but these features are not considered to be wetlands (see SP1 in Appendix D).

Table 1. Aquatic Resources in the Survey Area

Classification^{1,2}	Latitude/Longitude	Size³ (acres)	Length (feet)
Non-wetland Waters:		2.21	4,714
Intermittent stream	37.314167° N/ 122.017222° W	2.21	4,714
Total Waters of the U.S.		2.21	4,714

¹ See Appendix A maps for locations

² Per FGDC (2013)

³ Subject to verification by the Corps

Along several sections of channel bank, erosion has created steep earthen bank walls. Stream OHWM indicators include breaks in bank slope, changes in vegetation cover, and the presence of wrack, algal crust, water staining, and scour (see Appendices C and E). Above the OHWM, vegetation is dominated by coast live oak (*Quercus agrifolia*; NI), valley oak (*Quercus lobata*; FACU), holly oak (*Quercus ilex*; NI), black walnut (*Juglans hindsii*; FAC), and buckeye (*Aesculus californica*; NI) that occur in riparian forest on channel banks. The riparian forest understory is dominated by invasive nonnative species including English ivy (*Hedera helix*; NI), giant reed (*Arundo donax*; FACW), cape ivy (*Delairea odorata*; NI), periwinkle (*Vinca major*; NI), and bull thistle (*Cirsium vulgare*; FACU), and non-native grasses such as Pampas grass (*Cortaderia selloana*; FACU), Dallis grass (*Paspalum dilatatum*; FAC), Bermuda grass (*Cynodon dactylon*; FACU), Italian rye grass (*Festuca perennis*; FAC), and ripgut brome (*Bromus diandrus*; NI) (see Appendix D). Below the OHWM the channel was largely unvegetated but water pepper (*Persicaria hydropiperoides*, OBL), tall flatsedge (*Cyperus eragrostis*, FACW), horsetail (*Equisetum* sp.), Jersey cudweed (*Psuedognaphalium luteoalbum*, FAC), slender willow herb (*Epilobium ciliatum*, FACW), Italian rye grass, bristly ox-tongue (*Helminthotheca echioides*, FAC), fluellin species (*Kickxia* sp., UPL and NI), and cocklebur (*Xanthium strumarium*, FAC) were observed.

Erosional features, such as steeply eroded and collapsed banks, complicated the determination of the OHWM in some sections of Calabazas Creek (see photographs 12, 13, and 18 in Appendix C). In these sections, bank features associated with the OHWM such as break in bank slope were not visible. In the case of collapsed banks, the channel width below the OHWM was usually constricted as well. However, the presence of wrack and water staining on boulders within the channel typically corresponded with a clear OHWM on at least one bank, which was used to extrapolate the OHWM on the eroded or collapsed opposite bank. Some areas of collapsed banks included exposed felled tree roots with incised scour holes extending beneath the collapsed bank. In these areas, the extent of the scour hole was considered within the OHWM. Six culverts greater than 20-inches diameter and constructed with cement, steel, or plastic are located on channel banks and flows would outfall into Calabazas Creek. All but one of these culverts are higher than the channel bed and are mapped along the channel. Culvert C2 is a partially sedimented culvert

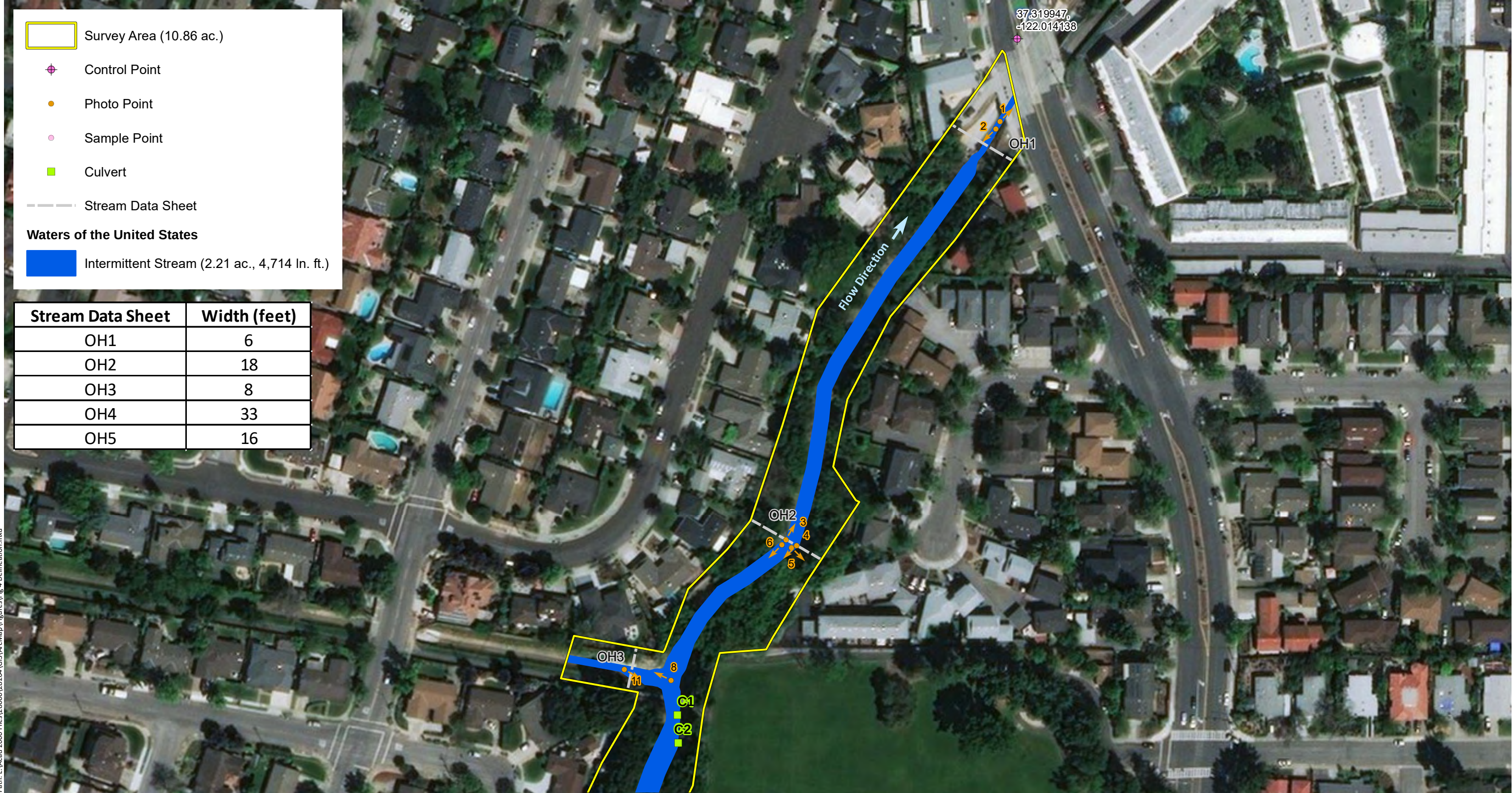
that is inside OHWM and thus considered to be jurisdictional.

Chapter 5. References

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Appendix A – Aquatic Resource Delineation Map



Survey Area (10.86 ac.)

Control Point

Photo Point

Sample Point

Culvert

Stream Data Sheet

Waters of the United States

Intermittent Stream (2.21 ac., 4,714 ln. ft.)

Stream Data Sheet	Width (feet)
OH1	6
OH2	18
OH3	8
OH4	33
OH5	16

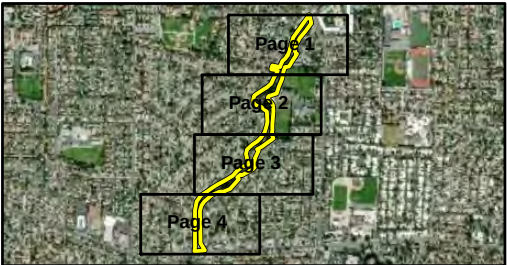
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Sources: 2016 DigitalGlobe Aerial, WRA | Prepared By: czumwalt, 10/23/2018

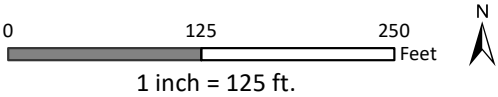
Appendix A. Aquatic Resource Delineation - Page 1

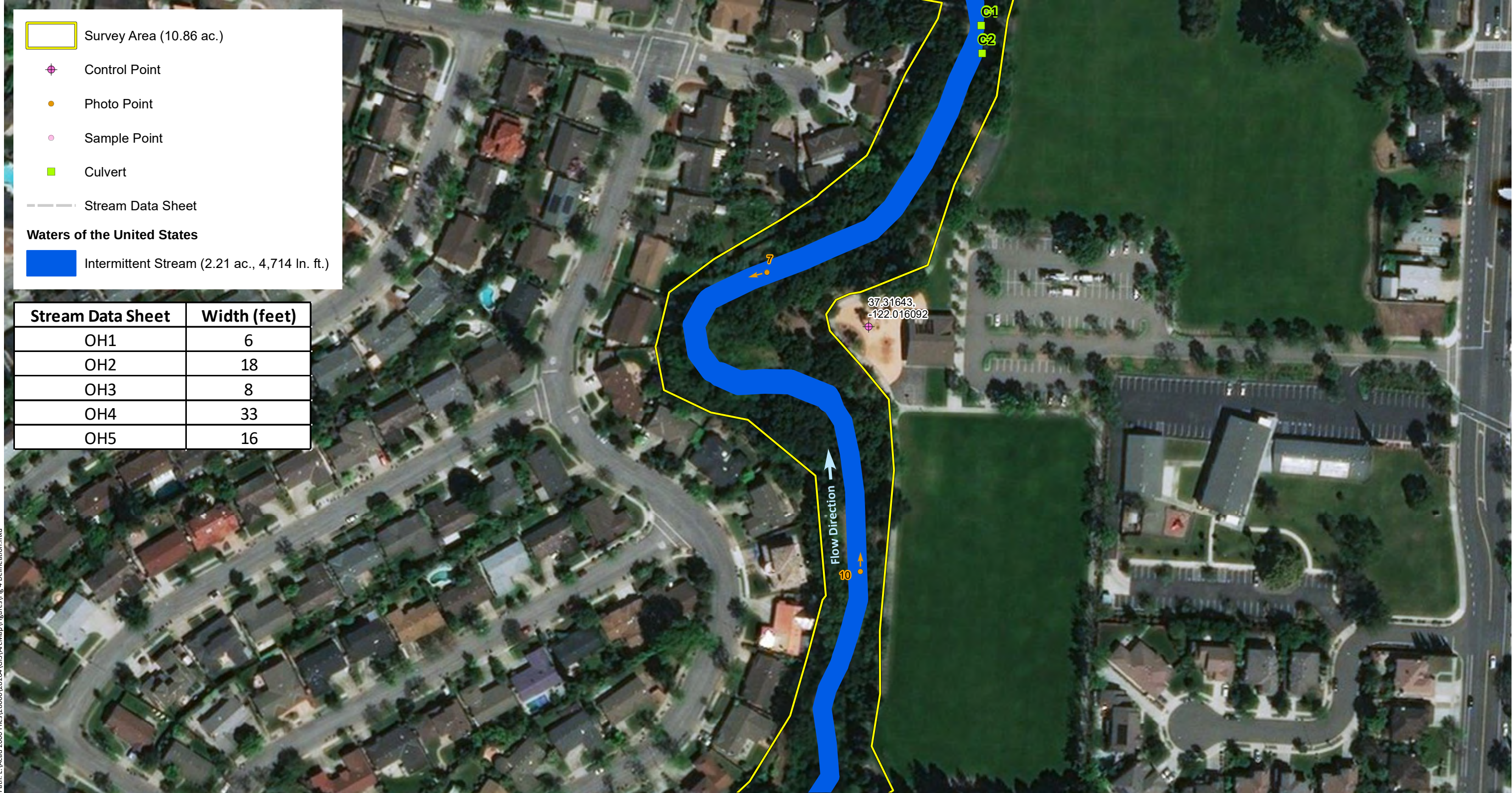
Subject to verification by the US Army Corps of Engineers

Calabazas Creek Rehabilitation Project
Cupertino, California



Coordinate System: NAD83 State Plane CA Zone III U.S. Ft.
Projection: Lambert Conic
Datum: North America 83



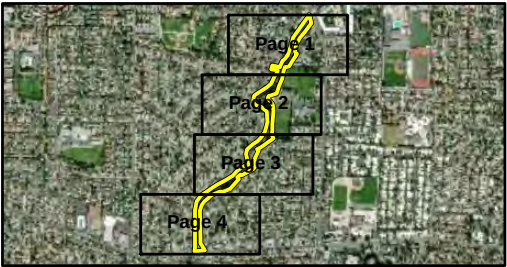


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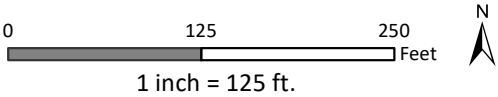
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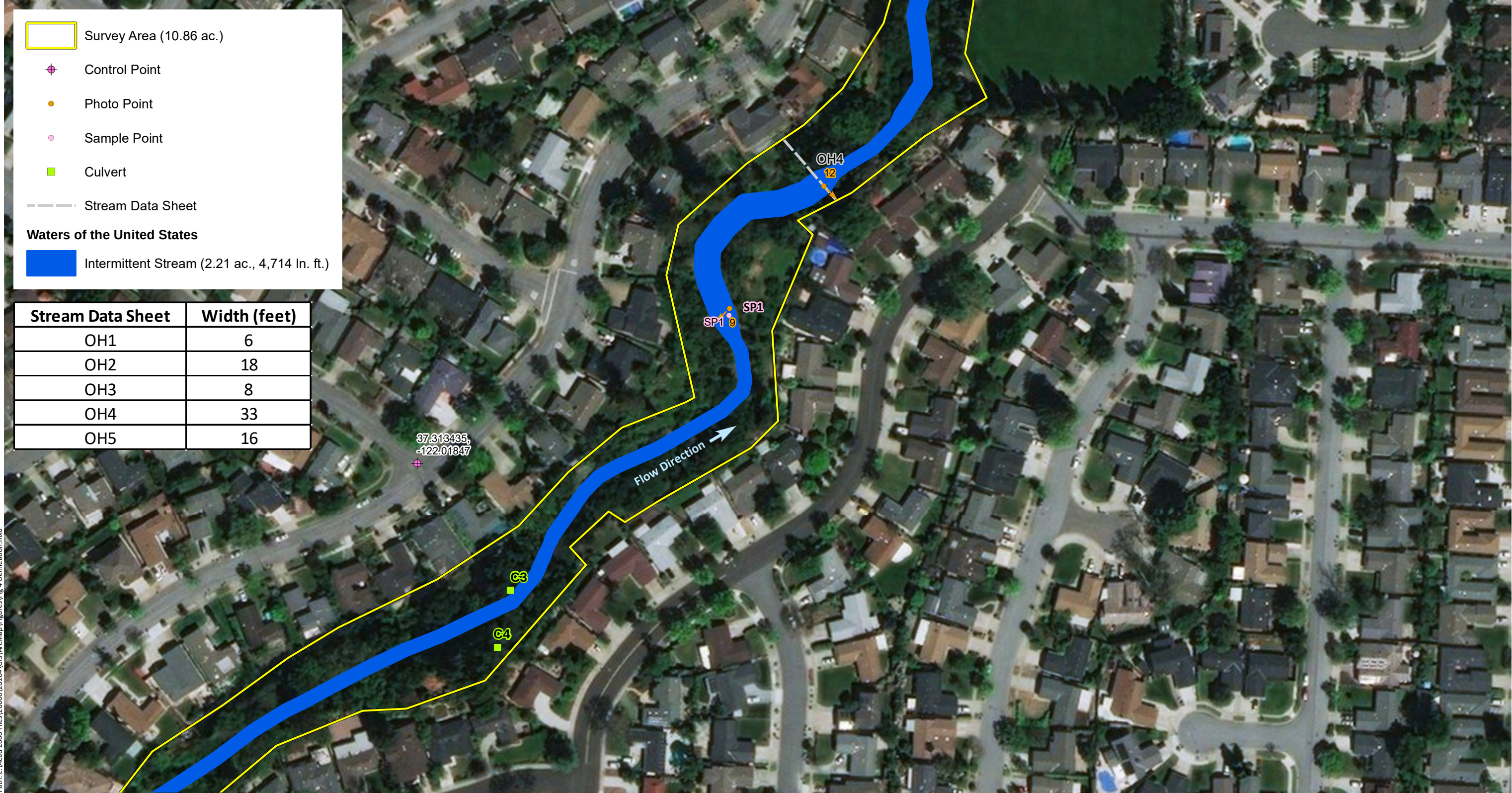
Subject to verification by the US Army Corps of Engineers

Calabazas Creek Rehabilitation Project
Cupertino, California



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Datum: North America 83



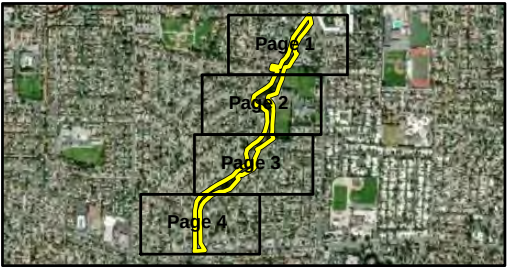


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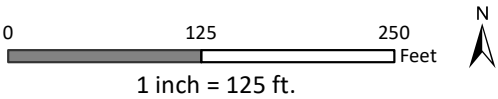
Appendix A. Aquatic Resource Delineation - Page 3

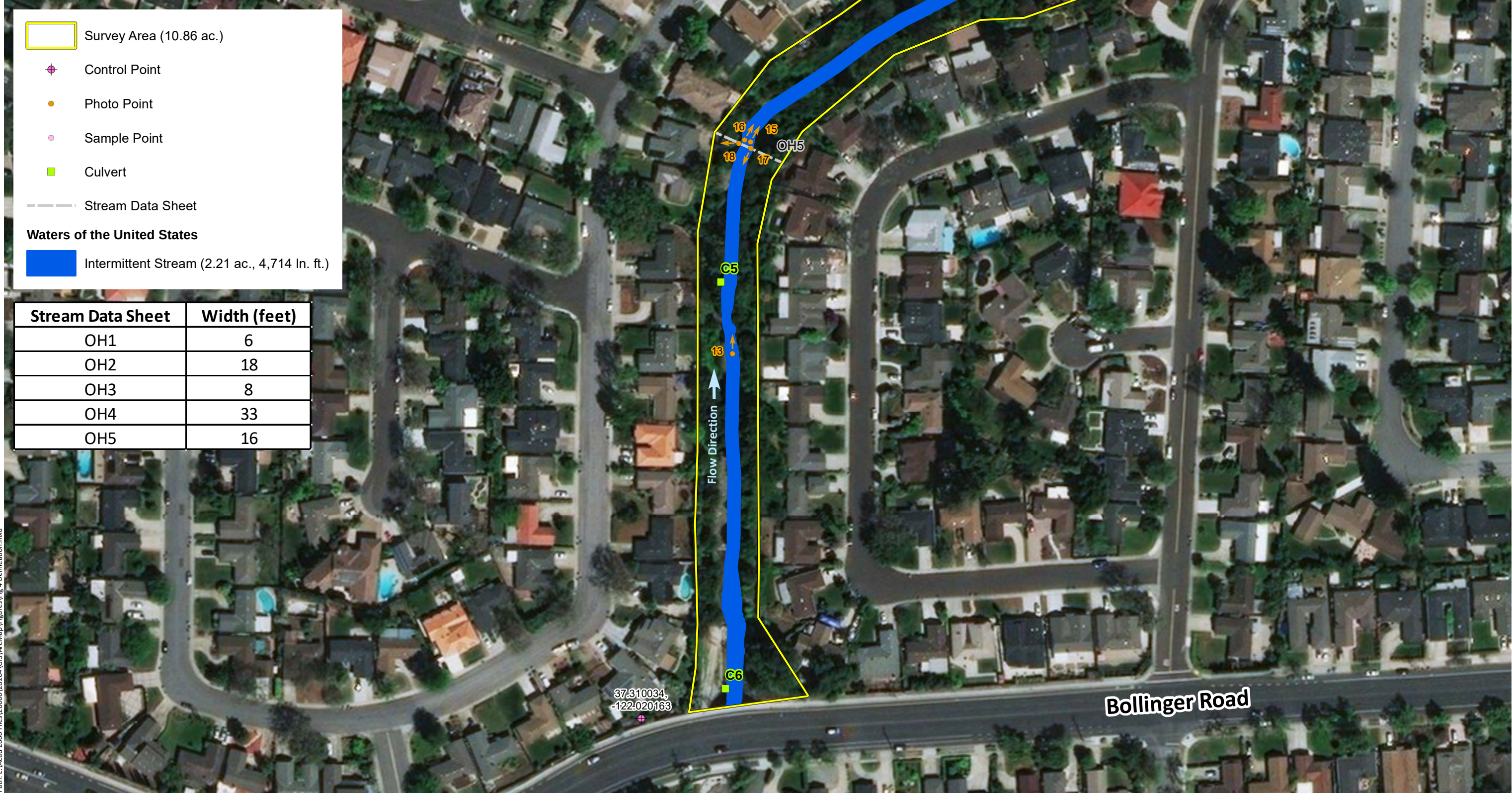
Subject to verification by the US Army Corps of Engineers

Calabazas Creek Rehabilitation Project
Cupertino, California



Coordinate System: NAD83 State Plane CA Zone III U.S. Ft.
Projection: Lambert Conic
Datum: North America 83





Sources: 2016 DigitalGlobe Aerial, WRA | Prepared By: czumwalt, 10/23/2018

Appendix A. Aquatic Resource Delineation - Page 4

Subject to verification by the US Army Corps of Engineers

Calabazas Creek Rehabilitation Project
Cupertino, California

Appendix B – Supporting Maps

This appendix includes a vicinity map of the survey area, the NWI map, and the NRCS soil maps and reports for the survey area.

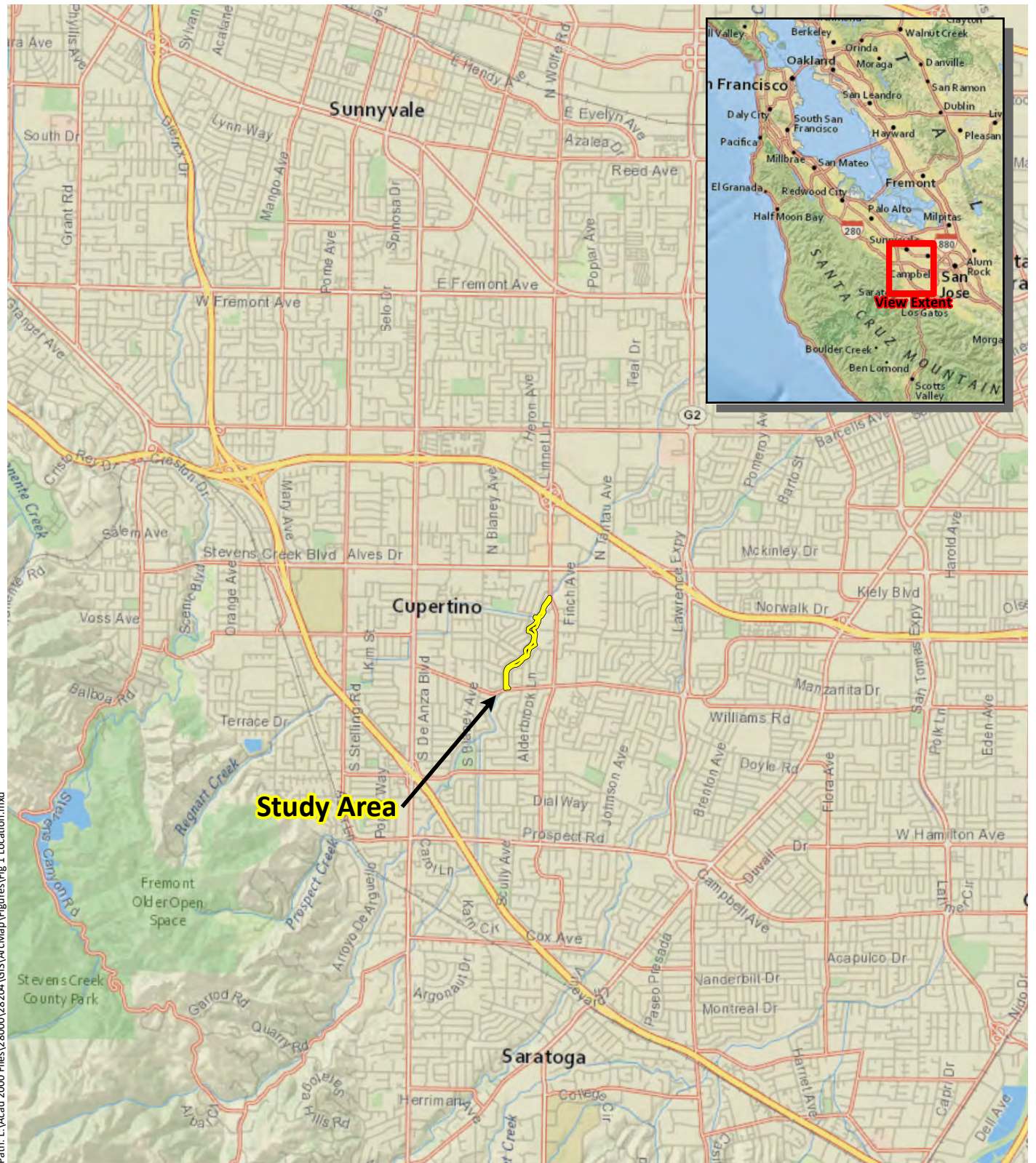
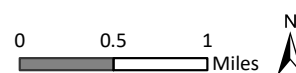


Figure 1. Study Area Location

Calabazas Creek Rehabilitation Project
Cupertino, California

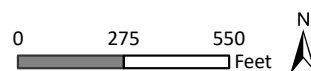


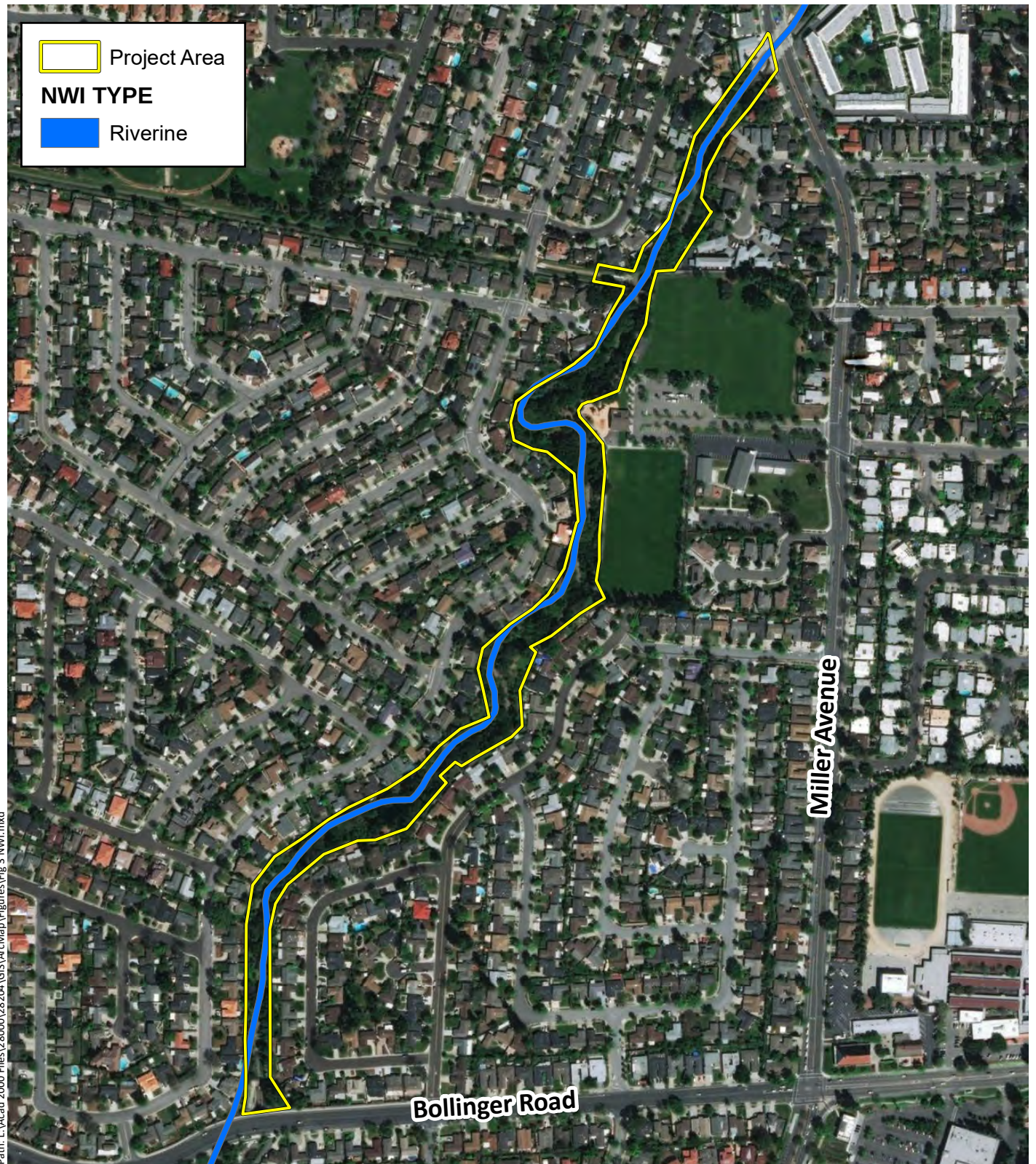


Sources: National Geographic, WRA | Prepared By: czumwalt, 10/8/2018

Figure 2. Project Area

Calabazas Creek Rehabilitation Project
Cupertino, California





Sources: National Geographic, WRA | Prepared By: czumwalt, 10/3/2018

Figure 3. National Wetlands Inventory

Calabazas Creek Rehabilitation Project
Cupertino, California

0 250 500
Feet





United States
Department of
Agriculture

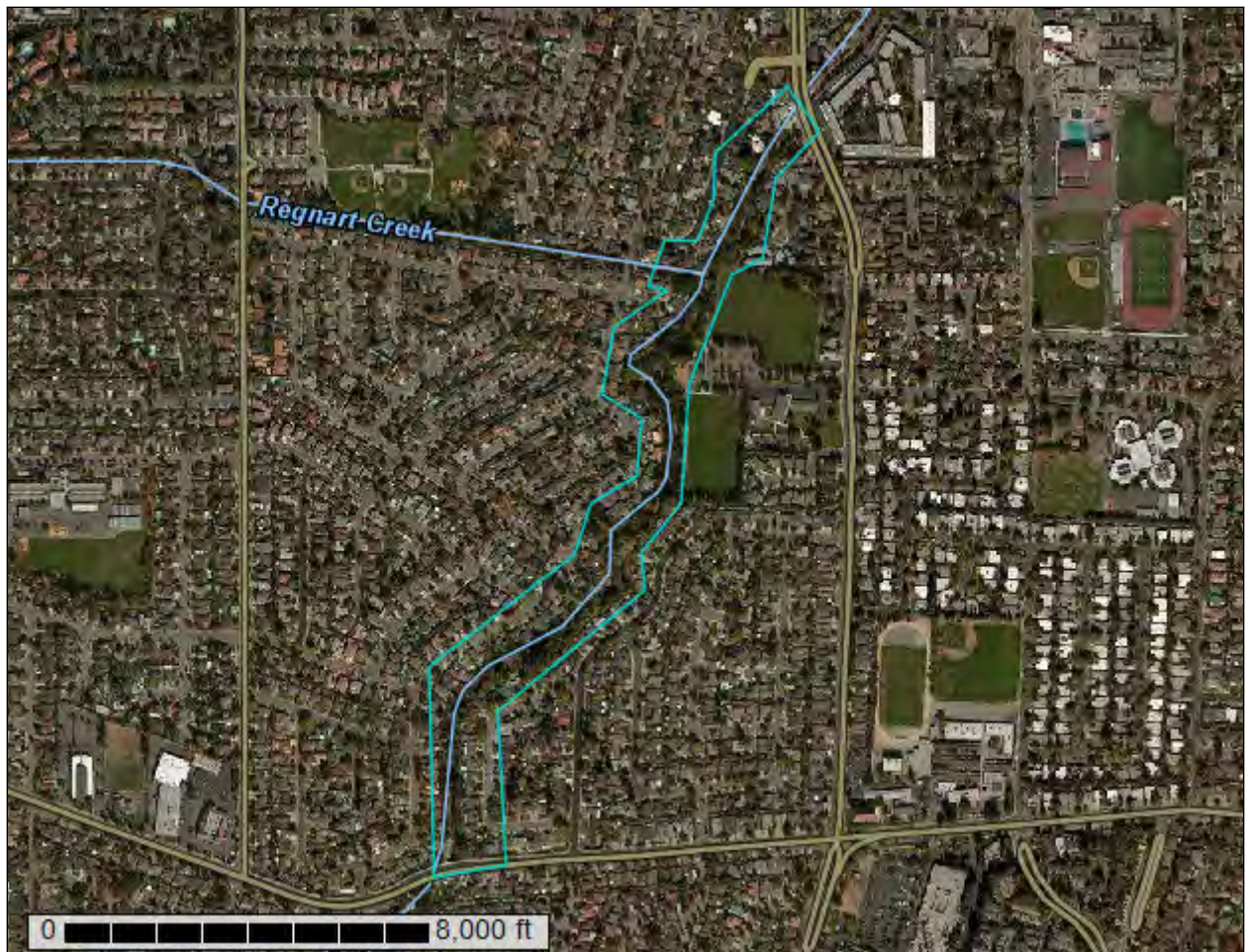
NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for **Santa Clara Area, California, Western Part**

Calabazas Creek Rehabilitation Project



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

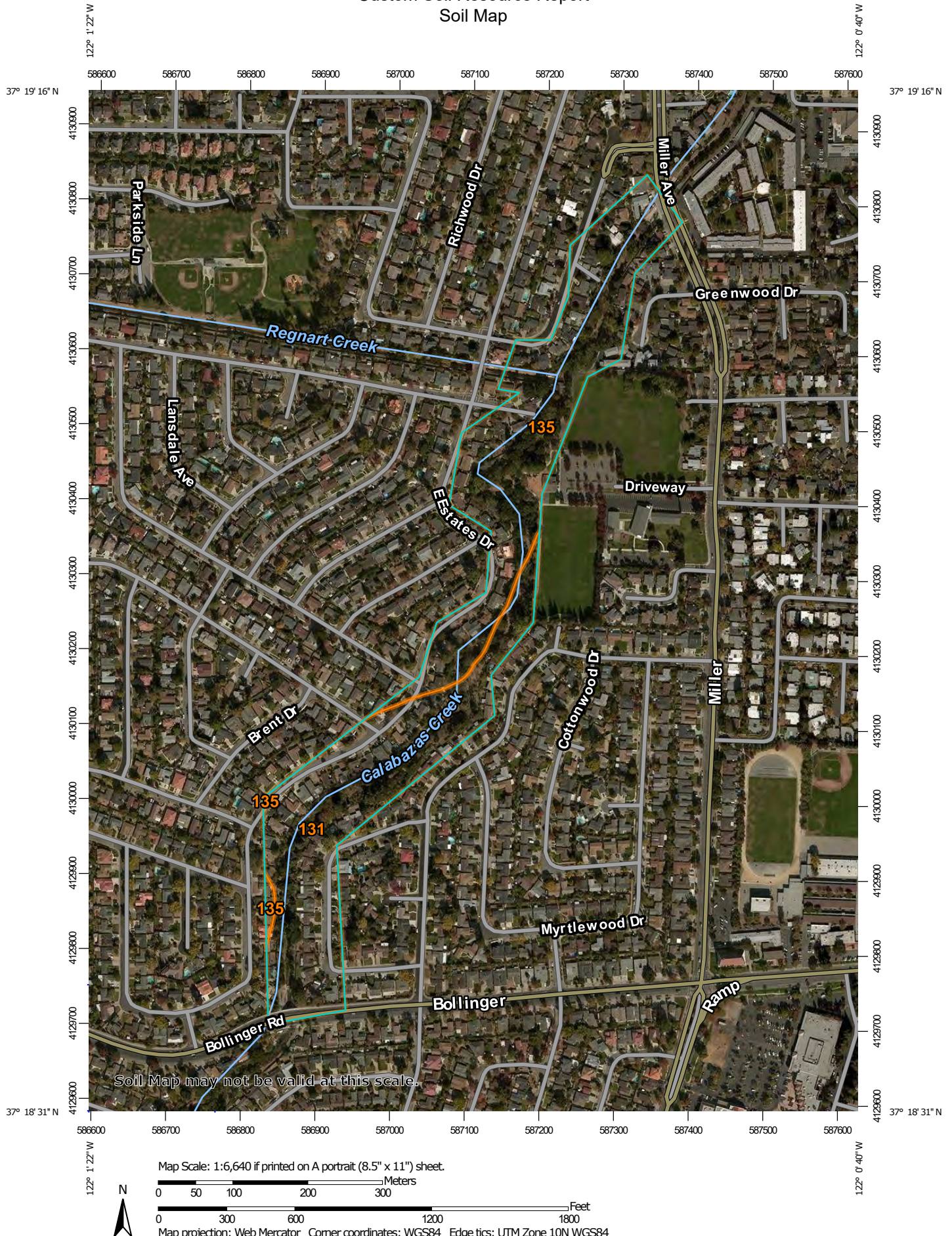
Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



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MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit

 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot

 Sinkhole

 Slide or Slip

 Sodic Spot

 Spoil Area

 Stony Spot

 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

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 1:24,000.

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:
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: Santa Clara Area, California, Western Part
Survey Area Data: Version 6, Sep 8, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 26, 2010—Nov 3, 2013

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.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
131	Urban land-Elpaloalto complex, 0 to 2 percent slopes	15.0	48.3%
135	Urban land-Stevenscreek complex, 0 to 2 percent slopes	16.0	51.7%
Totals for Area of Interest		31.0	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the

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development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Santa Clara Area, California, Western Part

131—Urban land-Elpaloalto complex, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 1nszz
Elevation: 10 to 390 feet
Mean annual precipitation: 14 to 24 inches
Mean annual air temperature: 57 to 61 degrees F
Frost-free period: 275 to 325 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 70 percent
Elpaloalto and similar soils: 23 percent
Minor components: 7 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Landform: Alluvial fans
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Disturbed and human transported material

Description of Elpaloalto

Setting

Landform: Alluvial fans
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from metamorphic and sedimentary rock and/or alluvium derived from metavolcanics

Typical profile

Oi - 0 to 8 inches: slightly decomposed plant material
A - 8 to 17 inches: clay loam
Bw1 - 17 to 26 inches: silty clay loam
Bw2 - 26 to 35 inches: silty clay loam
Bw3 - 35 to 47 inches: silty clay loam
Bw4 - 47 to 71 inches: silty clay loam
C - 71 to 94 inches: silty clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None

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Frequency of ponding: None

Salinity, maximum in profile: Nonsaline to slightly saline (0.4 to 4.0 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 2.0

Available water storage in profile: Very high (about 13.4 inches)

Interpretive groups

Land capability classification (irrigated): 1

Land capability classification (nonirrigated): 3s

Hydrologic Soil Group: C

Hydric soil rating: No

Minor Components

Still

Percent of map unit: 5 percent

Landform: Alluvial fans, flood plains

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Hangerone, drained

Percent of map unit: 2 percent

Landform: Basin floors

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: Yes

135—Urban land-Stevenscreek complex, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 1nszy

Elevation: 20 to 540 feet

Mean annual precipitation: 14 to 24 inches

Mean annual air temperature: 57 to 61 degrees F

Frost-free period: 275 to 325 days

Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 70 percent

Stevenscreek and similar soils: 25 percent

Minor components: 5 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Landform: Alluvial fans

Landform position (three-dimensional): Talf

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Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Disturbed and human transported material

Description of Stevenscreek

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from metamorphic and sedimentary rock and/or alluvium derived from metavolcanics

Typical profile

A1 - 0 to 2 inches: sandy loam
A2 - 2 to 9 inches: silt loam
ABt - 9 to 18 inches: silty clay loam
Bt1 - 18 to 27 inches: silty clay loam
Bt2 - 27 to 39 inches: clay loam
BC - 39 to 61 inches: sandy clay loam
C - 61 to 70 inches: sandy clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline (0.0 to 1.0 mmhos/cm)
Available water storage in profile: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Flaskan

Percent of map unit: 5 percent
Landform: Alluvial fans
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Soil Information for All Uses

Suitabilities and Limitations for Use

The Suitabilities and Limitations for Use section includes various soil interpretations displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each interpretation.

Land Classifications

Land Classifications are specified land use and management groupings that are assigned to soil areas because combinations of soil have similar behavior for specified practices. Most are based on soil properties and other factors that directly influence the specific use of the soil. Example classifications include ecological site classification, farmland classification, irrigated and nonirrigated land capability classification, and hydric rating.

Hydric Rating by Map Unit (Calabazas Creek Rehabilitation Project)

This rating indicates the percentage of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is rated based on its respective components and the percentage of each component within the map unit.

The thematic map is color coded based on the composition of hydric components. The five color classes are separated as 100 percent hydric components, 66 to 99 percent hydric components, 33 to 65 percent hydric components, 1 to 32 percent hydric components, and less than one percent hydric components.

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In Web Soil Survey, the Summary by Map Unit table that is displayed below the map pane contains a column named 'Rating'. In this column the percentage of each map unit that is classified as hydric is displayed.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

References:

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Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

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Map—Hydric Rating by Map Unit (Calabazas Creek Rehabilitation Project)



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

 Hydric (100%)
 Hydric (66 to 99%)
 Hydric (33 to 65%)
 Hydric (1 to 32%)
 Not Hydric (0%)
 Not rated or not available

Soil Rating Lines

 Hydric (100%)
 Hydric (66 to 99%)
 Hydric (33 to 65%)
 Hydric (1 to 32%)
 Not Hydric (0%)
 Not rated or not available

Soil Rating Points

 Hydric (100%)
 Hydric (66 to 99%)
 Hydric (33 to 65%)
 Hydric (1 to 32%)
 Not Hydric (0%)
 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 1:24,000.

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:
 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.

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 Survey Area Data: Version 6, Sep 8, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 26, 2010—Nov 3, 2013

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.

Table—Hydric Rating by Map Unit (Calabazas Creek Rehabilitation Project)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
131	Urban land-Elpaloalto complex, 0 to 2 percent slopes	2	15.0	48.3%
135	Urban land-Stevenscreek complex, 0 to 2 percent slopes	0	16.0	51.7%
Totals for Area of Interest			31.0	100.0%

Rating Options—Hydric Rating by Map Unit (Calabazas Creek Rehabilitation Project)

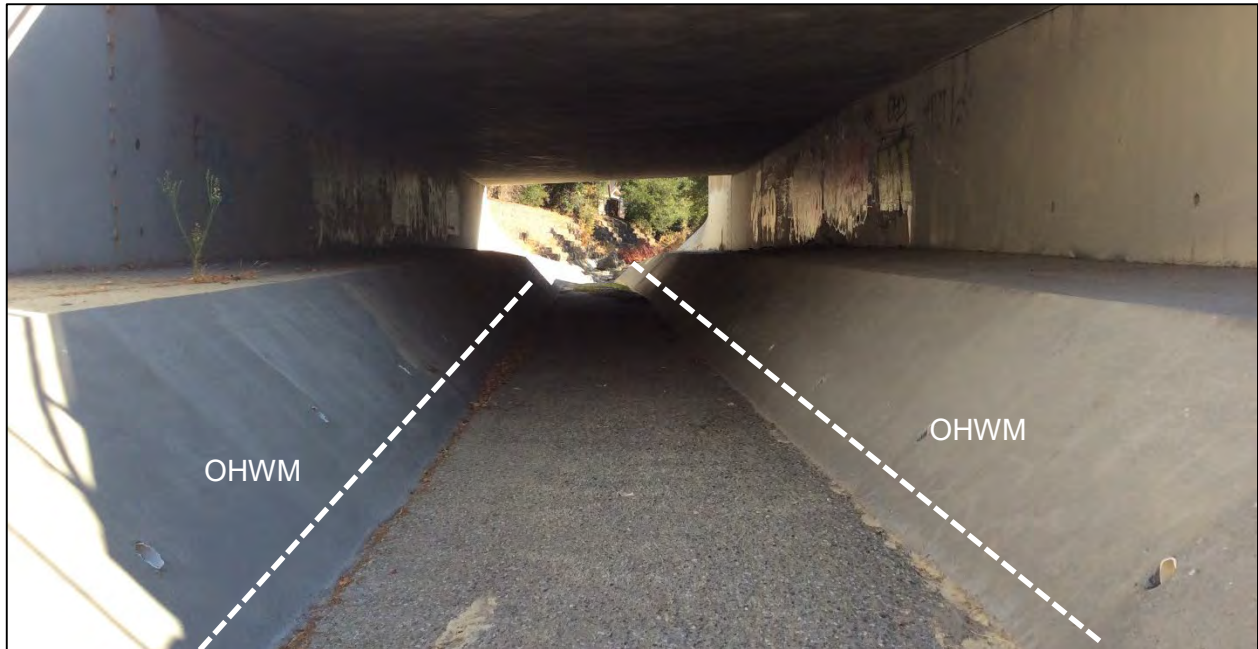
Aggregation Method: Percent Present

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Appendix C – On-Site Photographs

All photographs taken by Elan Alford and Rei Scampavia on September 19 and 20, 2018.



Photograph 1. Downstream (north-facing) view of Calabazas Creek channel (bottom of photo) at OHWM Transect 1. In this section, Calabazas Creek is contained by a cement channel flowing under Miller Avenue (top of photo). OHWM evident by water staining on cement banks.



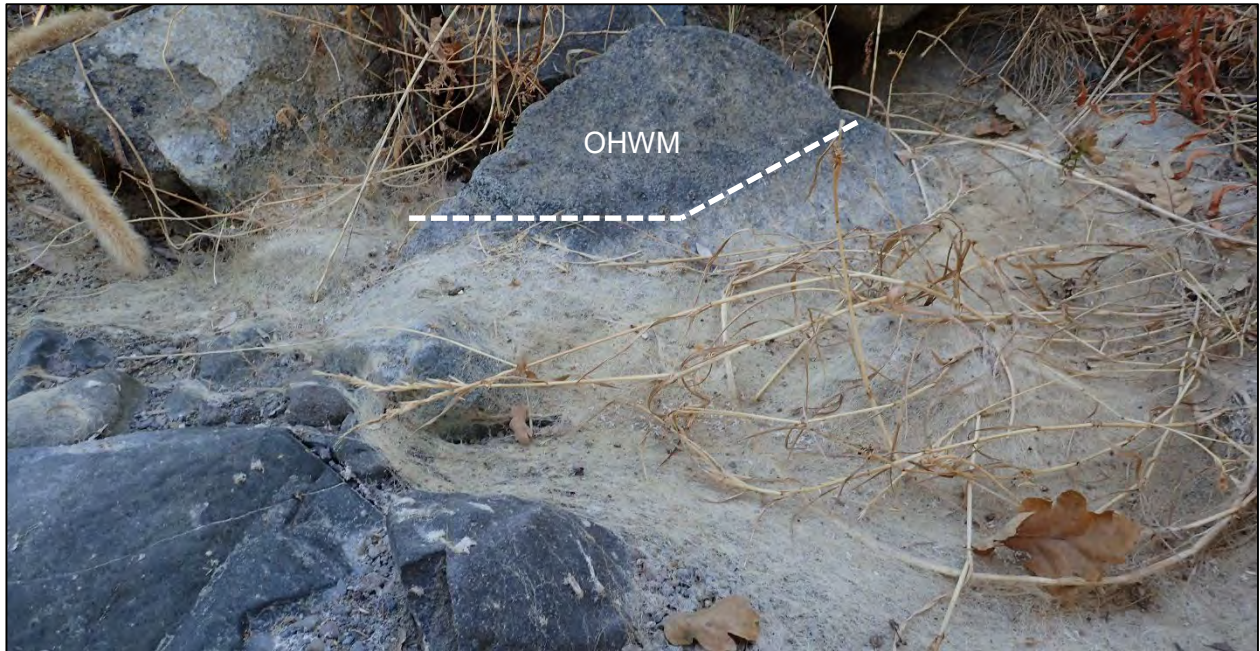
Photograph 2. Upstream (south-facing) view of Calabazas Creek channel just south of OHWM Transect 1. In this section, Calabazas Creek is contained by a cement channel flowing under Miller Avenue (top of photo). OHWM evident by water staining and algal mat in channel bed. Upstream in the earthen channel bed, change in vegetation cover is one of the OHWM indicators.



Photograph 3. West bank of Calabazas Creek at OHWM Transect 2, facing north. OHWM is evident under an overhanging willow (*Salix* sp.) by a change in wrack vegetation cover that corresponds to water staining on the east bank.



Photograph 4. East bank (facing south) of Calabazas Creek at OHWM Transect 2. OHWM is evident from a distinct water stain line on riprap placed along the bank. The sparsely vegetated gravel and coarse sand channel bed is covered in spots by a dried algal mat. Change in vegetation cover is apparent at the OHWM on the bank.



Photograph 5. East bank of Calabazas Creek at OHWM Transect 2. A dried algal mat covers much of the channel bed throughout the stretch of creek in the survey area. At Transect 1, the vertical extent of the algal mat corresponded with a water stain line at the OHWM.



Photograph 6. Sack-crete wall stabilizing the west bank of Calabazas Creek south of OHWM Transect 2. Uninterrupted lines of residential fences (top) stretch along both sides of the creek just beyond the top of bank for the entirety of the survey area.



Photograph 7. Regnart Creek at OHWM Transect 3, facing east and looking downstream at the confluence of Regnart and Calabazas Creeks. Regnart Creek is a trapezoidal-shaped cement sided channel with an earthen bed. The OHWM is evident from a water stain on the cement and a change in vegetation (the absence of mosses). A dried algal mat covers much of the channel bed.



Photograph 8. The confluence of Regnart and Calabazas Creeks, viewed from Calabazas Creek facing west. At Regnart Creek, above the cement lined banks, bare earth banks rise to the top of bank. Regnart Creek is approximately eight feet higher than Calabazas Creek and a cement apron connects Regnart Creek to Calabazas Creek, below which a scour hole (bottom) has developed in the Calabazas Creek bed.



Photograph 9. A patch of *Persicaria hydropiperoides*-dominated vegetation along the western side of the channel bed at Sample Point 1 (SP1). The vegetation at this location is distinct from the dried nonnative annuals above the OHWM and the unvegetated gravel and coarse sand channel bed. A dried algal mat (left) is continuous with the channel bed.



Photograph 10. Another example of a patchy vegetation growing up in the Calabazas Creek channel bed. These features are considered to be vegetated areas below the OHWM.



Photograph 11. Scour lines undercut a sack-crete lined bank indicating OHWM (right). On the opposite bank a break in bank slope and the change in vegetation cover marks the OHWM (left).



Photograph 12. An OHWM scour line (bottom left) along the steeply eroded east bank corresponds with the elevation of a break in bank slope on the opposite bank at OHMW Transect 4. Directly upstream is a reach of rock rip-rap bank stabilization.



Photograph 13. An upstream (south-facing) view of Calabazas Creek at the location of a bank failure on the west bank. The collapse has narrowed the channel by approximately one foot in width. A scour hole has developed beneath the root system of the collapsed tree and the OHWM was measured on the west bank to the extent of the scouring.



Photograph 14. A culvert outfall pipe (C3), embedded in a wall of sack-crete, empties from above the OHWM into Calabazas Creek.



Photograph 15. Upstream (south facing view) of east bank at OHWM Transect 5. A break in bank slope and English Ivy in the background indicate the OHWM. In the foreground the ivy appears to have been disturbed by foot-traffic and is not indicative of the OHWM. The cobble and gravel channel bed is covered by a patchy dried algal mat.



Photograph 16. West bank at OHWM Transect 5. The OHWM is evident by a change in vegetation cover, which corresponds with the break in bank slope on the opposite bank, wrack lines, and water staining on rocks in the channel bed.



Photograph 17. Water stain on a boulder in the channel bed at OHWM Transect 5. The elevation of the water stain corresponds with the OHWM on the east and west banks.



Photograph 18. A black tarp stabilizing riparian bank erosion on the west bank located at OHWM Transect 5.

Appendix D – Plant List

The following plant species were found in the survey area.

Species	Common Name	Wetland Indicator Status ¹	Above/Below OHWM?
<i>Acacia</i> sp.	-	-	Above
<i>Aesculus californica</i>	Buckeye	-	Above
<i>Agave americana</i>	Century plant	-	Above
<i>Ailanthus altissima</i>	Tree of heaven	FACU	Above
<i>Albizia julibrissin</i>	Silktree	-	Above
<i>Artemisia douglasiana</i>	California mugwort	FAC	Above
<i>Arundo donax</i>	Giant reed	FACW	Above
<i>Baccharis pilularis</i>	Coyote brush	-	Above
<i>Bromus diandrus</i>	Ripgut brome	-	Above
<i>Carduus pycnocephalus</i> ssp. <i>pycnocephalus</i>	Italian thistle	-	Above
<i>Centaurea solstitialis</i>	Yellow starthistle	-	Below
<i>Chenopodium</i> sp.	-	-	Below
<i>Cirsium vulgare</i>	Bullthistle	FACU	Above
<i>Cortaderia selloana</i>	Pampas grass	FACU	Above
<i>Cotoneaster</i> sp.	-	-	Above
<i>Cucurbita pepo</i>	Winter squash cultivar	-	Above
<i>Cynodon dactylon</i>	Bermuda grass	FACU	Above and Below
<i>Cyperus eragrostis</i>	Tall cyperus	FACW	Below
<i>Datura</i> sp.	-	-	Below
<i>Delairea odorata</i>	Cape ivy	-	Above
<i>Dittrichia graveolens</i>	Stinkwort	-	Below
<i>Epilobium ciliatum</i>	Slender willow herb	FACW	Below
<i>Equisetum</i> sp.	-	-	Above and Below
<i>Erigeron bonariensis</i>	Flax-leaved horseweed	FACU	Above and Below
<i>Eriobotrya japonica</i>	Loquat	UPL	Above
<i>Eucalyptus camaldulensis</i>	Red gum	FAC	Above
<i>Eucalyptus globulus</i>	Blue gum	-	Above
<i>Euphorbia maculata</i>	Spotted spurge	UPL	Below
<i>Festuca perennis</i>	Italian rye grass	FAC	Above and Below
<i>Foeniculum vulgare</i>	Fennel	-	Above
<i>Fraxinus</i> sp.	-	-	Above
<i>Genista monspessulana</i>	French broom	-	Above
<i>Hedera algeriensis</i>	Algerian ivy	-	Above
<i>Hedera helix</i>	English ivy	FACU	Above
<i>Helenium</i> sp.	-	-	Above
<i>Helminthotheca echioides</i>	Bristly ox-tongue	FAC	Above and Below
<i>Heteromeles arbutifolia</i>	Toyon	-	Above
<i>Juglans hindsii</i>	Northern California black	FAC	Above

Species	Common Name	Wetland Indicator Status ¹	Above/Below OHWM?
	walnut		
<i>Kickxia elatine</i>	Sharp point fluellin	UPL	Below
<i>Kickxia spuria</i>	Fluellin	-	Below
<i>Lactuca saligna</i>	Willow lettuce	UPL	Below
<i>Lactuca serriola</i>	Prickly lettuce	FACU	Above and Below
<i>Lathyrus sp.</i>	-	-	Above
<i>Lysimachia arvensis</i>	Scarlet pimpernel	FAC	Below
<i>Malva sp.</i>	-	-	Above
<i>Marah fabacea</i>	California man-root	-	Above
<i>Melilotus albus</i>	White sweetclover	-	Above and Below
<i>Olea europaea</i>	Olive	-	Above
<i>Opuntia sp.</i>	-	-	Above
<i>Paspalum dilatatum</i>	Dallis grass	FAC	Above
<i>Persicaria hydropiperoides</i>	Water pepper	OBL	Below
<i>Persicaria sp.</i>	-	-	Below
<i>Phalaris aquatica</i>	Harding grass	FACU	Above
<i>Phoenix dactylifera</i>	Date palm	-	Above
(<i>Phyllostachys sp.</i>)	Bamboo	-	Above
<i>Pinus sp.</i>	-	-	Above
<i>Plantago major</i>	Common plantain	FAC	Below
<i>Populus fremontii ssp. fremontii</i>	Cottonwood	FAC	Above
<i>Prunus sp.</i>	-	-	Above
<i>Pseudognaphalium luteoalbum</i>	Jersey cudweed	FAC	Below
<i>Quercus agrifolia</i>	Coast live oak	-	Above
<i>Quercus ilex</i>	Holly oak	-	Above
<i>Quercus lobata</i>	Valley oak	FACU	Above
<i>Rosa californica</i>	California wild rose	FAC	Above
<i>Rubus armeniacus</i>	Himalayan blackberry	FAC	Above
<i>Rubus ursinus</i>	California blackberry	FAC	Above
<i>Rumex conglomeratus</i>	Green dock	FACW	Above and Below
<i>Rumex crispus</i>	Curly dock	FAC	Above and Below
<i>Salix sp.</i>	-	-	Above
<i>Schinus molle</i>	Peruvian pepper tree	FACU	Above
<i>Sequoia sempervirens</i>	Coast redwood	-	Above
<i>Silybum marianum</i>	Milk thistle	-	Above
<i>Solanum sp.</i>	-	-	Below
<i>Sonchus sp.</i>	-	-	Below
<i>Symphoricarpos sp.</i>	-	-	Above
<i>Torilis arvensis</i>	Field hedge parsley	-	Above
<i>Toxicodendron diversilobum</i>	Poison oak	FACU	Above

Species	Common Name	Wetland Indicator Status ¹	Above/Below OHWM?
<i>Ulmus minor</i>	English elm	-	Above
<i>Umbellularia californica</i>	California bay	FAC	Above
<i>Urtica dioica</i>	Stinging nettle	FAC	Above and Below
<i>Vinca major</i>	Vinca	-	Above
<i>Washingtonia robusta</i>	Washington fan palm	FACW	Above and Below
<i>Xanthium strumarium</i>	Cocklebur	FAC	Above and Below
<i>Yucca sp.</i>	-	-	Above

¹ From Lichvar et al. (2016) for the Arid West region:

OBL = occurs in aquatic resources > 99% of time

FACW = occurs in aquatic resources 67-99% of time

FAC = occurs in aquatic resources 34-66% of time

FACU = occurs in aquatic resources 1-33% of time

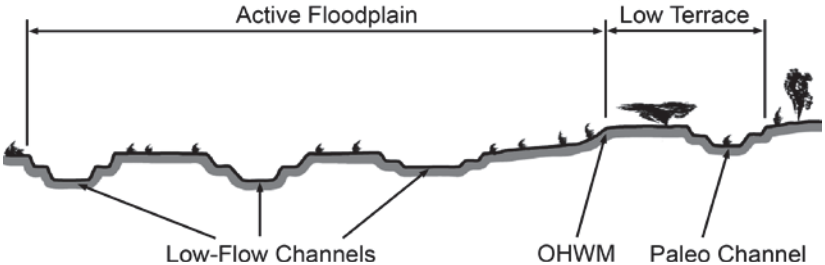
UPL = occurs in uplands > 99% of time

NI = indicator status not known in this region

Appendix E – OHWM and Wetland Data Sheets

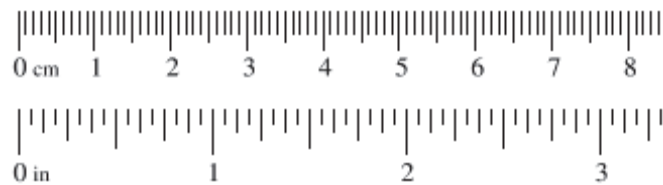
OHWM sample transects (OH1-OH5) and Sample Point data sheet (SP1) are mapped in Appendix A, and photographs of each are provided in Appendix C.

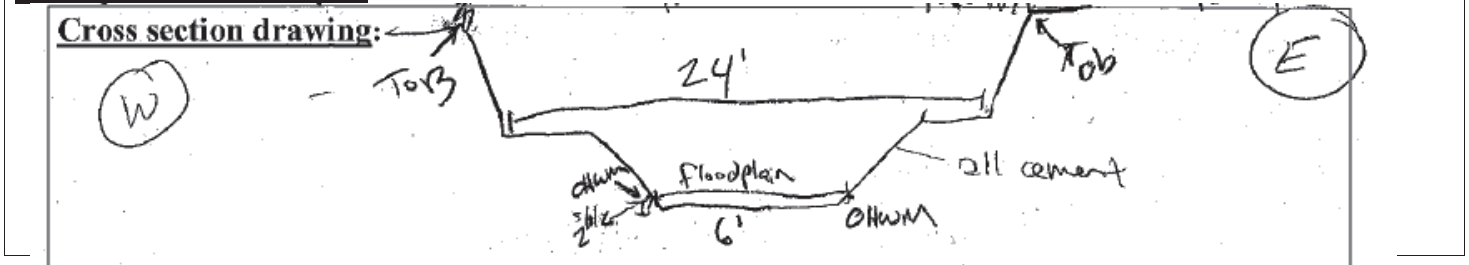
Arid West Ephemeral and Intermittent Streams OHW M Datasheet

Project: Calabazas Creek Rehabilitation Project Number: 28204 Stream: Calabazas Creek Investigator(s): Elan Alford, Rei Scampavia	Date: 09/18/2018 Town: Cupertino Photo begin file#: 1	Time: 10:04 AM State: California Photo end file#: 2
Y ☒ / N ☐ Do normal circumstances exist on the site? Y ☐ / N ☒ Is the site significantly disturbed?	Location Details: The transect is located in a cement channel at Miller Avenue. Projection: Datum: NAD 83 Coordinates: 37°19'10.440" N, 122°0'51.373 W	
Potential anthropogenic influences on the channel system: The transect is located in a linear reach of a concreted trapezoidal channel crossing at Miller Avenue.		
Brief site description: The transect is located in a dry cement channel under a road. The channel runs from south to north (downstream-upstream).		
Checklist of resources (if available): ☒ Aerial photography Dates: 1948-2018 ☒ Topographic maps ☐ Geologic maps ☐ Vegetation maps ☒ Soils maps ☒ Rainfall/precipitation maps ☐ Existing delineation(s) for site ☒ Global positioning system (GPS) ☐ Other studies ☐ Stream gage data Gage number: Period of record: ☐ History of recent effective discharges ☐ Results of flood frequency analysis ☐ Most recent shift-adjusted rating ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event		
Hydrogeomorphic Floodplain Units 		
Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM: 1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site. 2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units. 3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units. a) Record the floodplain unit and GPS position. b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit. c) Identify any indicators present at the location. 4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section. 5. Identify the OHWM and record the indicators. Record the OHWM position via: ☐ Mapping on aerial photograph ☒ Digitized on computer ☒ GPS ☐ Other:		

Wentworth Size Classes

Inches (in)		Millimeters (mm)		Wentworth size class	
	10.08	—	— — 256	Boulder	Gravel
	2.56	—	— — 64	Cobble	
	0.157	—	— — 4	Pebble	
				Granule	
	0.079	—	— — 2.00	Very coarse sand	Sand
	0.039	—	— — 1.00	Coarse sand	
	0.020	—	— — 0.50	Medium sand	
1/2	0.0098	—	— — 0.25	Fine sand	
1/4	0.005	—	— — 0.125	Very fine sand	
1/8	0.0025	—	— — 0.0625		
1/16	0.0012	—	— — 0.031	Coarse silt	Silt
1/32	0.00061	—	— — 0.0156	Medium silt	
1/64	0.00031	—	— — 0.0078	Fine silt	
1/128	0.00015	—	— — 0.0039	Very fine silt	
				Clay	Mud



Cross section drawing:**OHWM**GPS point: OH1a, OH1b**Indicators:**

- | | |
|---|--|
| ☐ Change in average sediment texture | ☐ Break in bank slope |
| ☐ Change in vegetation species | ☒ Other: <u>water staining</u> |
| ☐ Change in vegetation cover | ☒ Other: <u>algal crust</u> |

Comments:

The water staining on a concreted side slope is located at approximately 2.5-inches up the slope.

Floodplain unit:

- | | | |
|--|--|--------------------------------------|
| ☒ Low-Flow Channel | ☐ Active Floodplain | ☐ Low Terrace |
|--|--|--------------------------------------|

GPS point: OH1**Characteristics of the floodplain unit:**Average sediment texture: n/a- concreteTotal veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- | | |
|---|--|
| ☒ NA | ☐ Mid (herbaceous, shrubs, saplings) |
| ☐ Early (herbaceous & seedlings) | ☐ Late (herbaceous, shrubs, mature trees) |

Indicators:

- | | |
|--|--|
| ☐ Mudcracks | ☐ Soil development |
| ☐ Ripples | ☐ Surface relief |
| ☐ Drift and/or debris | ☒ Other: <u>water staining</u> |
| ☒ Presence of bed and bank | ☒ Other: <u>algal crust</u> |
| ☐ Benches | ☐ Other: _____ |

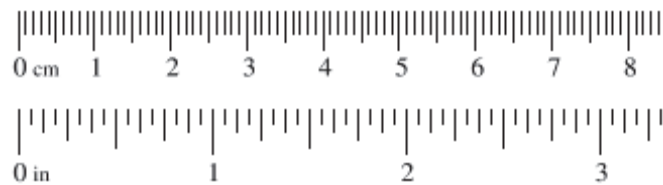
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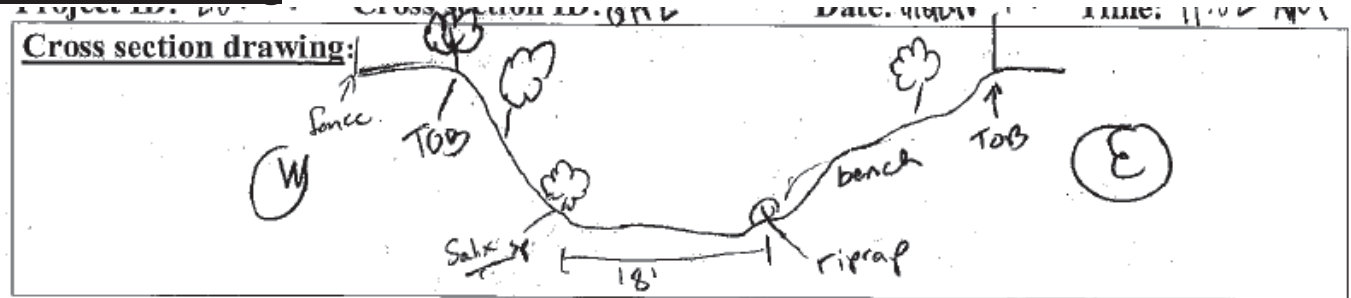
Arid West Ephemeral and Intermittent Streams OHW M Datasheet

Project: Calabazas Creek Rehabilitation Project Number: 28204 Stream: Calabazas Creek Investigator(s): Elan Alford, Rei Scampavia	Date: 09/18/2018 Town: Cupertino Photo begin file#: 3	Time: 11:52 AM State: California Photo end file#: 4
Y ☒ / N ☐ Do normal circumstances exist on the site? Y ☐ / N ☒ Is the site significantly disturbed?	Location Details: ~50' north (downstream) of creek entrance gate at Creekside Park Projection: Datum: NAD 83 Coordinates: 37°19'5.356" N, 122°0'54.566" W	
Potential anthropogenic influences on the channel system: There is an access gate to Calabazas Creek about 50 feet upstream. Calabazas Creek is bordered on the east and west banks by residential homes. At this creek section rip-rap stabilizes the eastern bank.		
Brief site description: This section of Calabazas Creek is a dry, relatively native channel with earthen banks and a gravel bed with some cobble and coarse sand. The eastern bank is stabilized by rip-rap. There is a sack-crete armored bank (western bank) upstream, and some boulders in the channel downstream.		
Checklist of resources (if available): ☒ Aerial photography Dates: 1948 - 2018 ☒ Topographic maps ☐ Geologic maps ☐ Vegetation maps ☒ Soils maps ☒ Rainfall/precipitation maps ☐ Existing delineation(s) for site ☒ Global positioning system (GPS) ☐ Other studies ☐ Stream gage data Gage number: Period of record: ☐ History of recent effective discharges ☐ Results of flood frequency analysis ☐ Most recent shift-adjusted rating ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event		
Hydrogeomorphic Floodplain Units 		
Procedure for identifying and characterizing the floodplain units to assist in identifying the OHW M: 1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site. 2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units. 3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units. a) Record the floodplain unit and GPS position. b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit. c) Identify any indicators present at the location. 4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section. 5. Identify the OHW M and record the indicators. Record the OHW M position via: ☐ Mapping on aerial photograph ☒ Digitized on computer ☒ GPS ☐ Other:		

Wentworth Size Classes

Inches (in)		Millimeters (mm)		Wentworth size class	
	10.08	—	— — 256	Boulder	
	2.56	—	— — 64	Cobble	Gravel
	0.157	—	— — 4	Pebble	
				Granule	
	0.079	—	— — 2.00		
				Very coarse sand	Sand
	0.039	—	— — 1.00	Coarse sand	
	0.020	—	— — 0.50	Medium sand	
1/2	0.0098	—	— — 0.25	Fine sand	
1/4	0.005	—	— — 0.125	Very fine sand	
1/8	0.0025	—	— — 0.0625		
1/16	0.0012	—	— — 0.031	Coarse silt	Silt
1/32	0.00061	—	— — 0.0156	Medium silt	
1/64	0.00031	—	— — 0.0078	Fine silt	
1/128	0.00015	—	— — 0.0039	Very fine silt	
				Clay	Mud



Cross section drawing:**OHWM**

GPS point: OH2

Indicators:

- ☐ Change in average sediment texture
☐ Change in vegetation species
☒ Change in vegetation cover

- ☒ Break in bank slope
☒ Other: algal mat, wrack
☒ Other: waterstaining

Comments:

The unvegetated channel bed is covered by a dried algal mat, which ends at the vegetated earthen western bank. Water staining along rip-rap on the eastern bank also denotes the OHWM.

Floodplain unit:☒ Low-Flow Channel☐ Active Floodplain☐ Low Terrace

GPS point: OH2

Characteristics of the floodplain unit:

Average sediment texture: gravel

Total veg cover: 4 % Tree: 4 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☒ NA
☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
☐ Late (herbaceous, shrubs, mature trees)

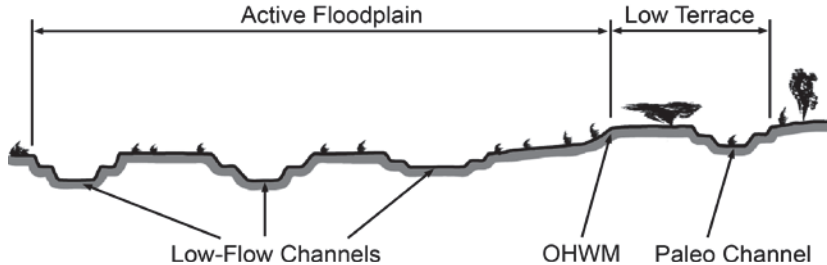
Indicators:

- ☐ Mudcracks
☐ Ripples
☐ Drift and/or debris
☒ Presence of bed and bank
☐ Benches

- ☒ Soil development
☒ Surface relief
☒ Other: algal mat
☐ Other: _____
☐ Other: _____

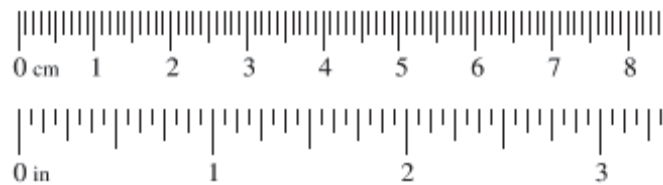
Comments: The channel itself is unvegetated with some willow (*Salix* sp.; FACW) overhang. The channel bed contains a rocky entosol riverwash soil, while the western bank is earthen. A dry algal mat also separates the channel below and above the the OHWM.

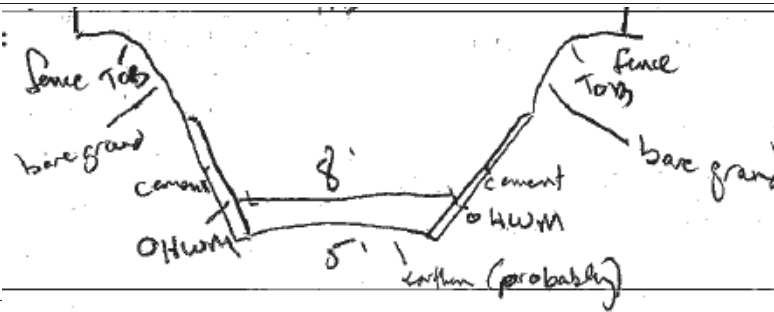
Arid West Ephemeral and Intermittent Streams OHW M Datasheet

Project: Calabazas Creek Rehabilitation Project Number: 28204 Stream: Regnart Creek Investigator(s): Elan Alford, Rei Scampavia	Date: 09/18/2018 Town: Cupertino Photo begin file#: 7	Time: 12:36 PM State: California Photo end file#: 8
Y ☒ / N ☐ Do normal circumstances exist on the site? Y ☐ / N ☒ Is the site significantly disturbed?	Location Details: Confluence of Regnart Creek and Calabazas Creek Projection: Datum: NAD 83 Coordinates: 37°19'3.578" N, 122°0'56.952" W	
Potential anthropogenic influences on the channel system: This section of Regnart Creek has cement sides. A walking trail borders the south side of the channel, and residential homes are above the top of bank north of the channel.		
Brief site description: Regnart Creek is a trapezoidal-shaped channel with cement sides and a five-foot wide flat coarse sand and gravel bottom where it flows into Calabazas Creek. The sides of the channel are mostly bare earth above the cement to the top of bank. Regnart Creek is about eight feet higher than Calabazas Creek. A cement apron feeds Regnart Creek into Calabazas Creek, resulting in a scour hole in the Calabazas Creek bed.		
Checklist of resources (if available): ☒ Aerial photography Dates: 1948-2018 ☒ Topographic maps ☐ Geologic maps ☐ Vegetation maps ☒ Soils maps ☒ Rainfall/precipitation maps ☐ Existing delineation(s) for site ☒ Global positioning system (GPS) ☐ Other studies ☐ Stream gage data Gage number: Period of record: ☐ History of recent effective discharges ☐ Results of flood frequency analysis ☐ Most recent shift-adjusted rating ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event		
Hydrogeomorphic Floodplain Units 		
Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM: 1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site. 2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units. 3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units. a) Record the floodplain unit and GPS position. b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit. c) Identify any indicators present at the location. 4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section. 5. Identify the OHWM and record the indicators. Record the OHWM position via: ☐ Mapping on aerial photograph ☒ Digitized on computer ☒ GPS ☐ Other:		

Wentworth Size Classes

Inches (in)		Millimeters (mm)		Wentworth size class	
	10.08	—	— — 256	Boulder	Gravel
	2.56	—	— — 64	Cobble	
	0.157	—	— — 4	Pebble	
				Granule	
	0.079	—	— — 2.00		Sand
	0.039	—	— — 1.00	Very coarse sand	
	0.020	—	— — 0.50	Coarse sand	
				Medium sand	
1/2	0.0098	—	— — 0.25	Fine sand	
1/4	0.005	—	— — 0.125	Very fine sand	
1/8	0.0025	—	— — 0.0625		
1/16	0.0012	—	— — 0.031	Coarse silt	Silt
				Medium silt	
1/32	0.00061	—	— — 0.0156	Fine silt	
1/64	0.00031	—	— — 0.0078	Very fine silt	
1/128	0.00015	—	— — 0.0039		Mud
				Clay	



Cross section drawing:**OHWM**

GPS point: OH3

Indicators:

- ☐ Change in average sediment texture
☐ Change in vegetation species
☐ Change in vegetation cover

- ☐ Break in bank slope
☒ Other: water staining
☐ Other:

Comments:

Water staining along the cement sides of the channel indicate the OHWM. Some algal crust is also present in the bed.

Floodplain unit:☒ Low-Flow Channel☐ Active Floodplain☐ Low Terrace

GPS point: OH3

Characteristics of the floodplain unit:

Average sediment texture: coarse sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☒ NA
☐ Early (herbaceous & seedlings)

- ☐ Mid (herbaceous, shrubs, saplings)
☐ Late (herbaceous, shrubs, mature trees)

Indicators:

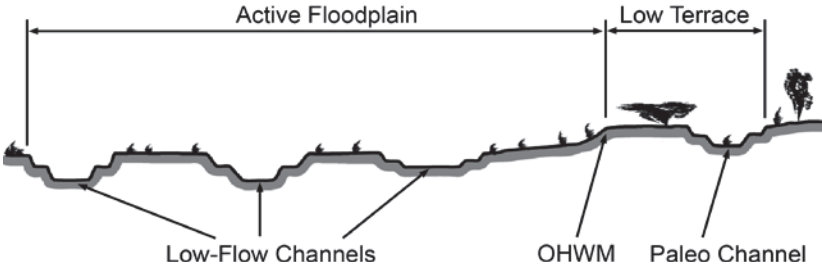
- ☐ Mudcracks
☐ Ripples
☐ Drift and/or debris
☐ Presence of bed and bank
☐ Benches

- ☐ Soil development
☐ Surface relief
☒ Other: algal mat
☐ Other:
☐ Other:

Comments:

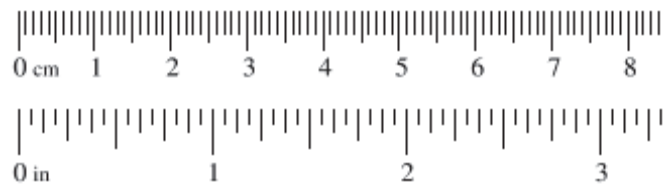
At this section, Regnart Creek is a bare native earth (coarse sand and some gravel) channel bordered by trapezoid-shaped cement channel walls. The bed is approximately 5-feet wide and at the OHWM is approximately 8-feet wide.

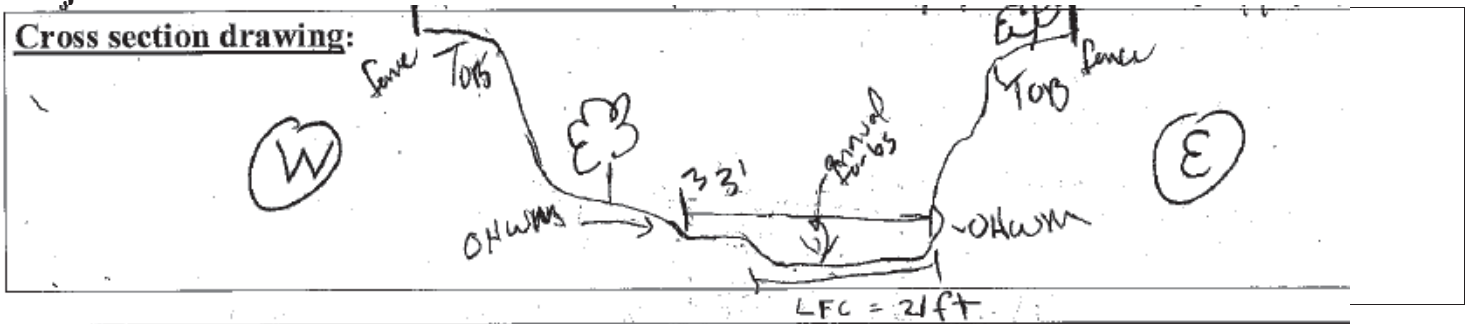
Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Calabazas Creek Rehabilitation Project Number: 28204 Stream: Calabazas Creek Investigator(s): Elan Alford, Rei Scampavia	Date: 09/18/2018 Town: Cupertino Photo begin file#: 12	Time: 2:49 PM State: California Photo end file#: 12
Y ☒ / N ☐ Do normal circumstances exist on the site? Y ☐ / N ☒ Is the site significantly disturbed?	Location Details: Calabazas Creek between Miller Avenue and Bollinger Road Projection: Datum: NAD 83 Coordinates: 37°18'52.016" N, 122°1'0.000" W	
Potential anthropogenic influences on the channel system: Some rip-rap stabilizes the eastern bank. Residential homes line the top of bank to the east and west.		
Brief site description: At this section, Regnart Creek is a dry native earth channel with a cobble and gravel substrate (with some sand). The eastern bank is steeply eroded, while the western bank is a gradual slope with leaf litter and some vegetation.		
Checklist of resources (if available): ☒ Aerial photography Dates: 1948-2018 ☒ Topographic maps ☐ Geologic maps ☐ Vegetation maps ☒ Soils maps ☒ Rainfall/precipitation maps ☐ Existing delineation(s) for site ☒ Global positioning system (GPS) ☐ Other studies ☐ Stream gage data Gage number: Period of record: ☐ History of recent effective discharges ☐ Results of flood frequency analysis ☐ Most recent shift-adjusted rating ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event		
Hydrogeomorphic Floodplain Units 		
Procedure for identifying and characterizing the floodplain units to assist in identifying the OHW: 1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site. 2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units. 3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units. a) Record the floodplain unit and GPS position. b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit. c) Identify any indicators present at the location. 4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section. 5. Identify the OHW and record the indicators. Record the OHW position via: ☐ Mapping on aerial photograph ☒ Digitized on computer ☒ GPS ☐ Other:		

Wentworth Size Classes

Inches (in)		Millimeters (mm)		Wentworth size class	
	10.08	—	— — 256	Boulder	Gravel
	2.56	—	— — 64	Cobble	
	0.157	—	— — 4	Pebble	
				Granule	
	0.079	—	— — 2.00	Very coarse sand	Sand
	0.039	—	— — 1.00	Coarse sand	
	0.020	—	— — 0.50	Medium sand	
1/2	0.0098	—	— — 0.25	Fine sand	
1/4	0.005	—	— — 0.125	Very fine sand	
1/8	0.0025	—	— — 0.0625		
1/16	0.0012	—	— — 0.031	Coarse silt	Silt
1/32	0.00061	—	— — 0.0156	Medium silt	
1/64	0.00031	—	— — 0.0078	Fine silt	
1/128	0.00015	—	— — 0.0039	Very fine silt	
				Clay	Mud



Cross section drawing:OHWMGPS point: OH4**Indicators:**

- | | |
|---|---|
| ☐ Change in average sediment texture | ☒ Break in bank slope |
| ☐ Change in vegetation species | ☒ Other: <u>scour</u> |
| ☐ Change in vegetation cover | ☐ Other: _____ |

Comments:

A break in bank indicates the OHWM to the west, and scour on the east and west banks also indicate the OHWM.

Floodplain unit:

- | | | |
|--|--|--------------------------------------|
| ☒ Low-Flow Channel | ☐ Active Floodplain | ☐ Low Terrace |
|--|--|--------------------------------------|

GPS point: OH4**Characteristics of the floodplain unit:**Average sediment texture: gravelTotal veg cover: 66 % Tree: 60 % Shrub: 0 % Herb: 6 %

Community successional stage:

- | | |
|--|--|
| ☐ NA | ☐ Mid (herbaceous, shrubs, saplings) |
| ☒ Early (herbaceous & seedlings) | ☐ Late (herbaceous, shrubs, mature trees) |

Indicators:

- | | |
|--|--|
| ☐ Mudcracks | ☒ Soil development |
| ☐ Ripples | ☒ Surface relief |
| ☐ Drift and/or debris | ☐ Other: _____ |
| ☒ Presence of bed and bank | ☐ Other: _____ |
| ☒ Benches | ☐ Other: _____ |

Comments:

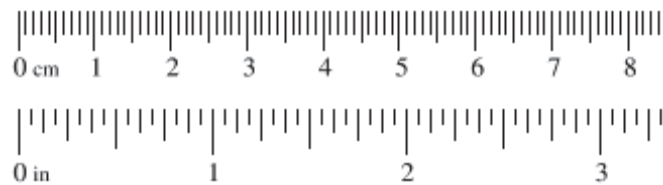
The tree canopy that shades the channel is rooted outside the channel above the OHWM.

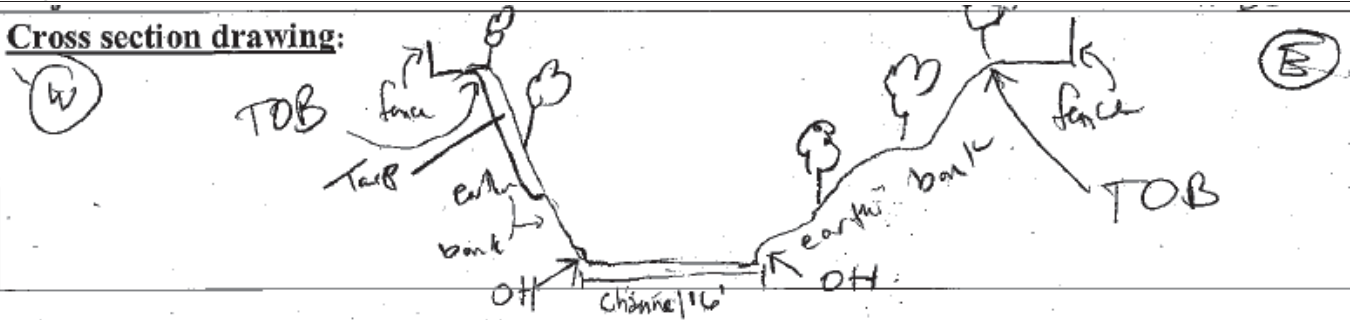
Arid West Ephemeral and Intermittent Streams OHW M Datasheet

Project: Calabazas Creek Rehabilitation Project Number: 28204 Stream: Calabazas Creek Investigator(s): Elan Alford, Rei Scampavia	Date: 09/19/2018 Town: Cupertino Photo begin file#: 14	Time: 11:20 AM State: California Photo end file#: 18
Y ☒ / N ☐ Do normal circumstances exist on the site? Y ☐ / N ☒ Is the site significantly disturbed?	Location Details: Calabazas Creek north of Bollinger Road Projection: Datum: NAD 83 Coordinates: 37°18'43.492" N, 122°1'11.050" W	
Potential anthropogenic influences on the channel system: Residential homes line the top of bank to the east and west. Some broken concrete litters the channel, and a black tarp covers the the eroded west bank. Bollinger Road crosses Calabazas Creek nearby to the south.		
Brief site description: At this section, Calabazas Creek is a dry rocky channel with earthen banks and boulder, cobble, and pebble substrate covered in a dry algal mat. The eastern bank is covered in English ivy, while the western bank sloop is steeply eroded and covered by a black tarp.		
Checklist of resources (if available): ☒ Aerial photography Dates: 1948-2018 ☒ Topographic maps ☐ Geologic maps ☐ Vegetation maps ☒ Soils maps ☒ Rainfall/precipitation maps ☐ Existing delineation(s) for site ☒ Global positioning system (GPS) ☐ Other studies ☐ Stream gage data Gage number: Period of record: ☐ History of recent effective discharges ☐ Results of flood frequency analysis ☐ Most recent shift-adjusted rating ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event		
Hydrogeomorphic Floodplain Units 		
Procedure for identifying and characterizing the floodplain units to assist in identifying the OHW M: 1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site. 2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units. 3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units. a) Record the floodplain unit and GPS position. b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit. c) Identify any indicators present at the location. 4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section. 5. Identify the OHW M and record the indicators. Record the OHW M position via: ☐ Mapping on aerial photograph ☒ Digitized on computer ☒ GPS ☐ Other:		

Wentworth Size Classes

Inches (in)		Millimeters (mm)		Wentworth size class	
	10.08	—	— — 256	Boulder	Gravel
	2.56	—	— — 64	Cobble	
	0.157	—	— — 4	Pebble	
				Granule	
	0.079	—	— — 2.00	Very coarse sand	Sand
	0.039	—	— — 1.00	Coarse sand	
	0.020	—	— — 0.50	Medium sand	
1/2	0.0098	—	— — 0.25	Fine sand	
1/4	0.005	—	— — 0.125	Very fine sand	
1/8	0.0025	—	— — 0.0625	Coarse silt	Silt
1/16	0.0012	—	— — 0.031	Medium silt	
1/32	0.00061	—	— — 0.0156	Fine silt	
1/64	0.00031	—	— — 0.0078	Very fine silt	
1/128	0.00015	—	— — 0.0039	Clay	Mud



Cross section drawing:**OHW**GPS point: OH5**Indicators:**

- | | |
|--|---|
| ☐ Change in average sediment texture | ☒ Break in bank slope |
| ☐ Change in vegetation species | ☒ Other: <u>water mark on channel rocks</u> |
| ☒ Change in vegetation cover | ☒ Other: <u>wrack</u> |

Comments:

Wreck, consisting of leaf litter, corroborates the OHWM indicated by water marks on boulders in the channel, as well as a break in bank slope on the western bank. Nearby creek sections have riparian bank failures that have been stabilized with tarps or rock rip-rap.

Floodplain unit:

- | | | |
|--|--|--------------------------------------|
| ☒ Low-Flow Channel | ☐ Active Floodplain | ☐ Low Terrace |
|--|--|--------------------------------------|

GPS point: OH5**Characteristics of the floodplain unit:**Average sediment texture: cobbleTotal veg cover: trace % Tree: 0 % Shrub: 0 % Herb: trace %

Community successional stage:

- | | |
|--|--|
| ☐ NA | ☐ Mid (herbaceous, shrubs, saplings) |
| ☒ Early (herbaceous & seedlings) | ☐ Late (herbaceous, shrubs, mature trees) |

Indicators:

- | | |
|--|---|
| ☐ Mudcracks | ☒ Soil development |
| ☐ Ripples | ☐ Surface relief |
| ☒ Drift and/or debris | ☒ Other: <u>algal mat</u> |
| ☒ Presence of bed and bank | ☐ Other: _____ |
| ☐ Benches | ☐ Other: _____ |

Comments:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Calabazas Creek Rehabilitation Project City/County: Cupertino/Santa Clara Sampling Date: 09/19/2018
 Applicant/Owner: Santa Clara Valley Water District State: CA Sampling Point: SP1
 Investigator(s): Elan Alford, Rei Scampavia Section, Township, Range: S 21/ T 7S/ R 1W
 Landform (hillslope, terrace, etc.): stream fringe Local relief (concave, convex, none): convex Slope (%): 1
 Subregion (LRR): LRR C Lat: 37.31398 Long: -122.01708 Datum: NAD 83
 Soil Map Unit Name: Urban land-Stevens Creek complex NWI classification: Riverine

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? No Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☒ No ☐	Hydic Soil Present? Yes ☐ No ☒	Is the Sampled Area within a Wetland? Yes ☐ No ☒
Wetland Hydrology Present? Yes ☒ No ☐		
Remarks: SP1 is located in one of several patches along Calabazas Creek dominated by Persicaria hydropiperoides below the ordinary high water mark. The gravelly soil bed made it difficult to obtain a soil sample for characterization.		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30' diameter</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. <u>Quercus lobata</u>	<u>30</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Aesculus californica</u>	<u>7</u>	<u>N</u>	<u>NI</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>7</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15' diameter</u>)				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
1. <u>none</u>	<u>0</u>			
2. _____	_____			
3. _____	_____			
4. _____	_____			
5. _____	_____			
<u>0</u> = Total Cover				
Herb Stratum (Plot size: <u>5'x5'</u>)				Hydrophytic Vegetation Indicators: ☒ Dominance Test is >50% ☐ Prevalence Index is ≤3.0 ¹ ☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ☐ Problematic Hydrophytic Vegetation ¹ (Explain)
1. <u>Persicaria hydropiperoides</u>	<u>35</u>	<u>Y</u>	<u>OBL</u>	
2. <u>Chenopodium sp.</u>	<u>7</u>	<u>N</u>	<u>FACU</u>	
3. <u>Dittrichia graveolens</u>	<u>7</u>	<u>N</u>	<u>NI</u>	
4. <u>Cyperus eragrostis</u>	<u>3</u>	<u>N</u>	<u>FACW</u>	
5. <u>Pseudognaphalium luteoalbum</u>	<u>2</u>	<u>N</u>	<u>FAC</u>	
6. _____	_____			
7. _____	_____			
8. _____	_____			
<u>54</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>15' diameter</u>)				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>none</u>	<u>0</u>			
2. _____	_____			
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>26</u> % Cover of Biotic Crust <u>20</u>				
Hydrophytic Vegetation Present? Yes ☒ No ☐				

Remarks:

The tree canopy (Quercus lobata and Aesculus californica) are rooted uphill of SP1 on a riparian bank and not in the stream fringe. They were therefore not counted in the dominance test since they are not indicative of site-specific hydrology.

SOIL

Sampling Point: SP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5							sand	coarse sand, gravel, some cobble

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) **(LRR C)**
- ☐ 1 cm Muck (A9) **(LRR D)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)

- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils³:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none
Depth (inches): n/a

Hydric Soil Present? Yes ☐ No ☒

Remarks:

High gravel content prohibited excavation past a five inch depth. Within that depth, soil was dry and no redoximorphic features or hydrogen sulfide smell were present at the time of excavation of the exploratory pit.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)

- ☐ Salt Crust (B11)
- ☒ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): n/a
Water Table Present? Yes ☐ No ☒ Depth (inches): n/a
Saturation Present? Yes ☐ No ☒ Depth (inches): n/a
(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A dried algal mat covered about 20% of the soil surface. At the time of excavation, soil was dry to five inches depth. Similar algal mat is present in other unvegetated areas of the channel.

Appendix F – Property Access Statement

The Santa Clara Valley Water District owns or has easements along the Calabazas Creek channel. Corps personnel are allowed to enter the channel from the access gate at Creekside Park (south of Miller Avenue) and collect samples during normal business hours, but must notify and be accompanied by District staff to do so.

Alex Hunt
SCVWD Associate Environmental Planner and
authorized representative of Santa Clara Valley Water District

Appendix E

Cultural Resources Survey Memorandum

MEMO

Date: September 26, 2018

To: Carole Foster
Associate Water Resources Specialist
Stream Maintenance Program Unit
Santa Clara Valley water District
5750 Almaden Expressway, San Jose, CA 95118

From: Elena Reese

Subject: Santa Clara Valley Water District Calabazas Creek Rehabilitation Project
(PL-3039-01, Task 7)

A cultural resources pedestrian inventory survey was conducted in support of the Calabazas Creek Rehabilitation Project (Project) on September 20, 2018. The Project will involve repairs at 11 locations to eroded vertical creek banks, undercut creek banks, and creek bank failures. These activities will take place along Calabazas Creek between Miller Avenue and Bollinger Road in the City of Cupertino, Santa Clara County (*see* Figures 1 and 2). The area spans approximately 3,700 feet in total length, though ground disturbance will be confined to roughly 1,355 feet of creek bank within the wider Project area. No prehistoric or historic period cultural materials were encountered during the pedestrian inventory survey. Based on the results of the survey and an archival and records search requested by the SCVWD, it is our opinion that would be a low likelihood of encountering cultural resources during Project ground disturbing activities. Should the Project result in the inadvertent discovery of cultural resources, however, we recommend that all work in the immediate area stop and that a qualified archaeologist be contacted immediately for assistance.

Task 7 - The Calabazas Creek Rehabilitation Project

A non-confidential archival and records search of the California Historical Resources Information System (CHRIS) was conducted by the Northwest Information Center (NWIC) on August 22, 2018. This search indicated that two prior archaeological studies (S-018403 - Cartier, Eckert, and Reddington 1996; S-028028 - Busby 2003) overlapped approximately 20% of the Project area, however no previously recorded archaeological sites, buildings, or structures were noted (NWIC File No. 18-0248). The NWIC reported a "moderate potential" for Native American and historic period archeological resources, and noted that the Caltrans Bridge Inventory lists one historic bridge within or adjacent to the Project area. The bridge has a status designation of "5" or ineligible for listing in the National Register. The bridge is referenced by one prior study (S-0280280 - Busby 2003) as the "old Bollinger Road Bridge," which was recorded outside of the Project area (350 feet upstream of the current bridge) and was not documented during Pacific Legacy's survey. NWIC basemaps depicted two structures on the 1948 USGS Palo Alto topographic quadrangle adjacent to the creek. The creek alignment has

been straightened since the 1948 quadrangle was created, however, and the structures are no longer adjacent to the creek alignment (USGS 1948).

The pedestrian inventory survey of the Project area included all exposed soils in the Calabazas Creek bed and the eroded banks on both the east and west sides of the creek between Miller Avenue and Bollinger Road, though particular attention was paid to the 11 proposed Project activity areas as well as to the creek bed and access ramp at Creekside Park in Cupertino, which will be used to access the work locations. Ground surface visibility was generally excellent (95%), with a few fallen trees and brush in the creek bed. The creek bed was dry at the time of the survey. It was characterized by gravels, sand, and areas of larger rocks, cobbles, and boulders, some of which may have been imported. Along the creek bed, scattered concrete fragments from prior erosion control efforts were noted along with a few water-washed brick fragments, one terra cotta flowerpot sherd, and other recent debris (including concrete pipe fragments, a concrete staircase fragment, and two soccer balls). These objects were likely modern and not *in situ*. No prehistoric or clearly historic period materials were observed.

Visibility on the eroded bank locations ranged from 20 to 100% depending on density of vegetation. Since most of the areas were extensive, sufficient bank soil profiles were visible to assess whether cultural deposits were present. Table 1 provides survey data for the eleven bank repair locations within the Project area (see Attachment A for photograph documentation).

Table 1. Summary of Survey Results by Location

Area No.	Side of Creek	Length	Visibility	Vegetation Noted	Soil Description	Cultural Material Present	Comments
1	East	60 ft	100%	Ivy, live oak, seasonal grass	2.5Y 6/2 light brownish gray sandy clay	None	Riprap partly obscured view.
2	West	40 ft	90-100%	Live oaks, patches of ivy	2.5Y 6/2 light brownish gray sandy clay	None	Riprap partly obscured view.
3	East	54 ft	90-100%	Live oaks, ivy, poison oak, buckeyes	2.5Y 6/2 light brownish gray sandy clay	None	
4	West	100 ft	20% on opposite bank	Ivy, oaks, buckeye	2.5Y 6/1 gray sandy clay on opposite bank	None	Riprap obscured immediate bank view.
5	East	100 ft	90-100%	Eucalyptus, seasonal grasses, oaks, buckeye	10YR 6/2 light grayish brown sandy clay and gravel	None	
6	East	100 ft	40-100%	Seasonal grasses, poison oak, cactus at top of bank	10YR 5/2 grayish brown sandy clay over 10YR 6/2 light brownish gray gravelly clay	None	
7	East	80 ft	75%	Ivy, oaks, blackberry, bamboo, seasonal grasses	2.5Y 6/1 gray sandy clay over dense sandy gravel	None	Tarp over part of collapsed bank

Area No.	Side of Creek	Length	Visibility	Vegetation Noted	Soil Description	Cultural Material Present	Comments
8	East	100 ft	20-100%	Ivy, 2 redwoods, tree of heaven, live oaks	2.5Y 6/1 gray sandy clay over 2.5Y 6/3 light yellowish brown sandy clay	None	
9	West	330 ft	90-100% in failed bank area	Oaks, ivy, palm trees, seasonal grasses	2.5Y 6/2 light brownish gray sandy clay	None	
10	East	260 ft	100% in creek bed; 20% above on bank	Dense ivy, live oaks	2.5Y 6/2 light brownish gray sandy clay	None	Work area in creek bed. Concrete above import sand at base of the bank.
11	West	130 ft	20-60%	Seasonal grasses, live oaks, ivy, dill	10YR 5/2 grayish brown sandy clay	None	

All exposed soils in the Project area were examined, along with spot-checked areas where ground cover was scuffed aside, and no evidence of cultural constituents was found. Exposed bank soil strata were assessed for signs of cultural deposits. The Project is not expected to reveal buried cultural materials. Prior to initiating ground disturbing activities, however, construction personnel should be alerted to the possibility of encountering buried prehistoric or historic period cultural remains. Personnel should be advised that, upon discovery of buried cultural deposits, work in the immediate vicinity of the find should cease and a qualified archaeologist should be contacted immediately. Once the find has been identified, plans for the treatment, evaluation, and mitigation of impacts to the find will need to be developed if it is found to be eligible for listing in the National or California Register.

Potential cultural materials include prehistoric and historic period artifacts and remains. These may consist of, but are not limited to:

- historic period artifacts, such as glass bottles and fragments, tin cans, nails, ceramic and pottery sherds, and other metal objects;
- historic period features such as privies, wells, cellars, foundations or other structural remains (bricks, concrete, or other building materials);
- flaked-stone artifacts and debitage, consisting of obsidian, basalt, and/or chert;
- groundstone artifacts, such as mortars, pestles, and grinding slabs;
- dark, almost black, soil with a "greasy" texture that may be associated with charcoal, ash, bone, shell, flaked stone, groundstone, and fire-affected rock; and,
- human remains.

If human remains are encountered during construction, work in that area must cease and the Santa Clara County Coroner must be notified immediately. If the remains are determined to be Native American, the Native American Heritage Commission (NAHC) must be notified within 48 hours as required by Public Resources Code 5097. The NAHC will notify the designated Most Likely Descendant, who will in turn provide recommendations for the treatment of the remains within 24 hours.



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Sincerely,

A handwritten signature in black ink that reads 'Elma Reese'.

Senior Archaeologist
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reese@pacificlegacy.com

References

Busby, Colin I.

2003 Archaeological Resources Assessment, Bollinger Road Bicycle Lane/Bridge Culvert Replacement and Extension, Cities of Cupertino and San Jose, Santa Clara County (letter report). [S-028028]

Cartier, R., L. Eckert, and J. Reddington

1996 Cultural Resource Evaluation of the Urgent Erosion Control Project for the Maintenance Program EIR. For Thomas Reid Associates. [S-018403]

Attachments

Attachment A: Photographic Documentation

Attachment B: Figures (provided by SCVWD)

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PO Box 6050
Arnold, CA 95223
209.795.4481 Ph.
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4919 Windplay Dr. #4
El Dorado Hills, CA 95762
916.358.5156 Ph.
916.358.5161 Fax

Attachment A: Pacific Legacy Photographic Documentation

Client: Santa Clara Valley Water District

Prepared by: E. Reese

Photograph No. 1

Direction: North

Date: 9/20/18

Location:

Calabazas Creek

Photographer:

Elena Reese

Description:

(Frame 1637)

Overview of Miller Avenue Bridge from Area 1.



Photograph No. 2

Direction:

Northeast

Date: 9/20/18

Location:

Calabazas Creek

Photographer:

Elena Reese

Description:

(Frame 1636)

Overview of Area 1 showing undercut rip-rap on east bank.



Attachment A: Pacific Legacy Photographic Documentation

Client: Santa Clara Valley Water District

Prepared by: E. Reese

Photograph No. 3

Direction: South

Date: 9/20/18

Location:

Calabazas Creek

Photographer:

Elena Reese

Description:

(Frame 1638)

Overview of
Creeside Park
access ramp from
the creek bed.



Photograph No. 4

Direction:

Southwest

Date: 9/20/18

Location:

Calabazas Creek

Photographer:

Elena Reese

Description:

(Frame 1639)

Overview of Area 2,
west bank erosion at
confluence with
Regnart Creek.



Attachment A: Pacific Legacy Photographic Documentation

Client: Santa Clara Valley Water District

Prepared by: E. Reese

Photograph No. 5

Direction:

Southeast

Date: 9/20/18

Location:

Calabazas Creek

Photographer:

Elena Reese

Description:

(Frame 1640)

Overview of Area 3,
tree root exposure
on east bank.



Photograph No. 6

Direction: West

Date: 9/20/18

Location:

Calabazas Creek

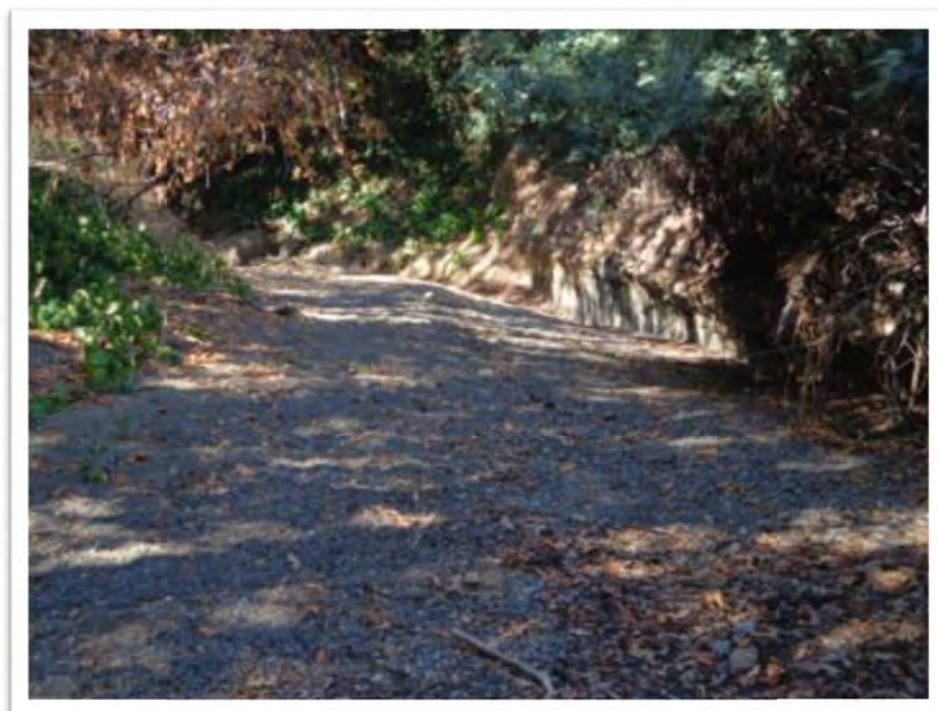
Photographer:

Elena Reese

Description:

(Frame 1642)

Overview of Area 4,
undercut rip-rap on
west bank.



Attachment A: Pacific Legacy Photographic Documentation

Client: Santa Clara Valley Water District

Prepared by: E. Reese

Photograph No. 7

Direction:

Southwest

Date: 9/20/18

Location:

Calabazas Creek

Photographer:

Elena Reese

Description:

(Frame 1644)

Overview of Area 5,
eroding vertical east
bank.



Photograph No. 8

Direction: North

Date: 9/20/18

Location:

Calabazas Creek

Photographer:

Elena Reese

Description:

(Frame 1648)

Overview of Area 6,
eroding east bank.



Attachment A: Pacific Legacy Photographic Documentation

Client: Santa Clara Valley Water District

Prepared by: E. Reese

Photograph No. 9

Direction:

Northeast

Date: 9/20/18

Location:

Calabazas Creek

Photographer:

Elena Reese

Description:

(Frame 1650)

Overview of Area 7,
east bank failure.



Photograph No. 10

Direction: South

Date: 9/20/18

Location:

Calabazas Creek

Photographer:

Elena Reese

Description:

(Frame 1654)

Overview of Area 8,
east bank erosion.



Attachment A: Pacific Legacy Photographic Documentation

Client: Santa Clara Valley Water District

Prepared by: E. Reese

Photograph No. 11

Direction:

Southwest

Date: 9/20/18

Location:

Calabazas Creek

Photographer:

Elena Reese

Description:

(Frame 1656)

Overview of Area 9,
west bank erosion.



Photograph No. 12

Direction: South

Date: 9/20/18

Location:

Calabazas Creek

Photographer:

Elena Reese

Description:

(Frame 1659)

Overview of Area 10,
east bank erosion at
creek level.



Attachment A: Pacific Legacy Photographic Documentation

Client: Santa Clara Valley Water District

Prepared by: E. Reese

Photograph No. 13

Direction:

Northwest

Date: 9/20/18

Location:

Calabazas Creek

Photographer:

Elena Reese

Description:

(Frame 1662)

Overview of Area 11,
west bank erosion.



Photograph No. 14

Direction: South

Date: 9/20/18

Location:

Calabazas Creek

Photographer:

Elena Reese

Description:

(Frame 1663)

Overview of
Bollinger Road
Bridge.



c:\w:\Resource Pros\PROJECTS WATERSHED\Calabazas_Miller-Bollinger\GIS> August 27, 2018

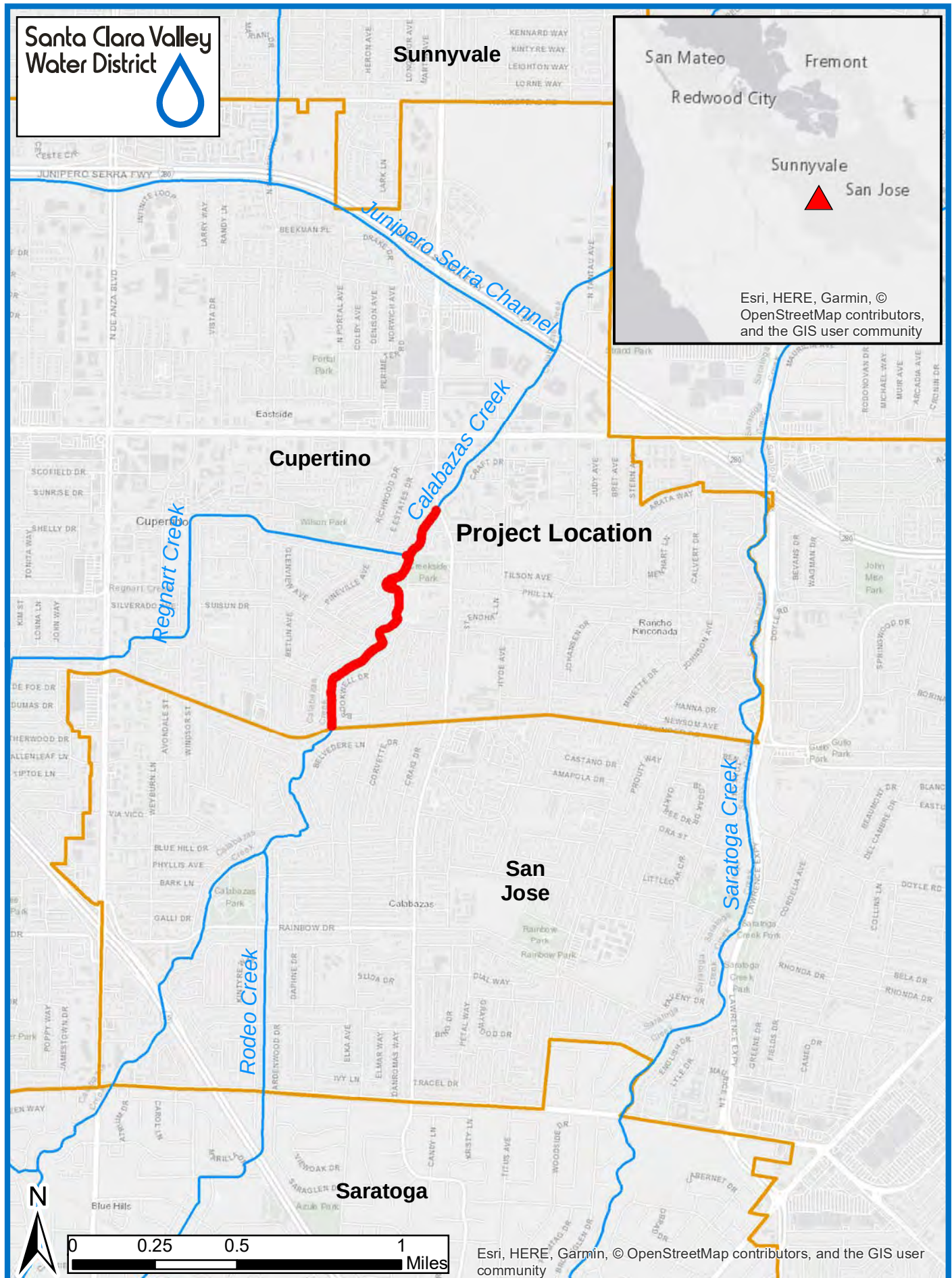


Figure 1
Regional Context

<W:\Resource Pros\PROJECTS WATERSHED\Calabazas_Miller-Bollinger\GIS> August 27, 2018



Appendix F
Mitigation Monitoring and Reporting Program
Summary Table

The following table summarizes the Mitigation Monitoring and Reporting Program (MMRP) which includes the Valley Water's best management practices (BMPs), and mitigation measures identified in the Mitigated Negative Declaration. For each measure, the table provides description of the measure, implementation timing, the entity responsible for implementing the measure, and the entity responsible for monitoring and oversight of the measure.

The MMRP will be adopted by the Valley Water Board of Directors for implementation by the Valley Water, as appropriate. Additionally, implementation of the MMRP will be reported and tracked consistent with CEQA Guidelines Section 15097 and permit reporting conditions.

MITIGATION MONITORING AND REPORTING PROGRAM					
BMP/Mitigation Measure Name	BMP/Mitigation Measure ID	Description of Measures	Implementation Timing	Implementation Responsibility	Responsibility for Oversight
AIR QUALITY					
Use Dust Control Measures	BMP AQ-1	The following Bay Area Air Quality Management District (BAAQMD) Dust Control Measures will be implemented: 1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day; 2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered; 3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited; 4. Water used to wash the various exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, etc.) will not be allowed to enter waterways; 5. All vehicle speeds on unpaved roads shall be limited to 15 mph; 6. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used; 7. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure CCR Title 13, Section 2485), and this requirement shall be	During all phases of construction.	Construction contractor	Valley Water

MITIGATION MONITORING AND REPORTING PROGRAM					
BMP/Mitigation Measure Name	BMP/Mitigation Measure ID	Description of Measures	Implementation Timing	Implementation Responsibility	Responsibility for Oversight
		clearly communicated to construction workers (such as verbiage in contracts and clear signage at all access points); 8. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications, and all equipment shall be checked by a certified visible emissions evaluator; 9. Correct tire inflation shall be maintained in accordance with manufacturer's specifications on wheeled equipment and vehicles to prevent excessive rolling resistance; and, 10. 10. Post a publicly visible sign with a telephone number and contact person at the lead agency to address dust complaints; any complaints shall be responded to and take corrective action within 48 hours. In addition, a BAAQMD telephone number with any applicable regulations will be included.			
Avoid Stockpiling Odorous Materials	BMP AQ-2	Materials with decaying organic material, or other potentially odorous materials, will be handled in a manner that avoids impacting residential areas and other sensitive receptors, including: 1. Avoid stockpiling potentially odorous materials within 1,000 feet of residential areas or other odor sensitive land uses; and 2. Odorous stockpiles will be disposed of at an appropriate landfill.	During all phases of construction.	Construction contractor	Valley Water
Reduce Construction-related NO _x Emissions	BMP AQ-3	Nitrogen oxide (NO_x) construction mitigation measures recommended by BAAQMD will be implemented, including the following: 1. Minimize idling time either by shutting equipment off when not in use or by reducing the time of idling to 5 minutes [required by 13 CCR Sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site.	During all phases of construction.	Construction contractor	Valley Water

MITIGATION MONITORING AND REPORTING PROGRAM					
BMP/Mitigation Measure Name	BMP/Mitigation Measure ID	Description of Measures	Implementation Timing	Implementation Responsibility	Responsibility for Oversight
		2. Provide a plan for approval by Valley Water demonstrating that the construction contractors' heavy-duty off-road vehicles (50 horsepower or more) to be used in Project construction, including owned, leased, and subcontractor vehicles, will achieve a Project-wide fleet-average 20 percent NO_x reduction and 45 percent particulate reduction compared to the most recent California Air Resources Board (CARB) fleet average. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available. 3. Ensure that emissions from Valley Water's construction contractors' off-road diesel-powered equipment used on the Project site do not exceed 40 percent opacity for more than three minutes in any one hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) will be repaired immediately. 4. A visual survey of all in-operation equipment will be made at least weekly.			
Biological Resources					
Remove Temporary Fill	BMP BI-1	Temporary fill materials, such as for diversion structures or cofferdams, will be removed upon finishing the work or as appropriate. The creek channels and banks will be re-contoured to match pre-construction conditions to the extent possible. Low-flow channels within non-tidal streams will be contoured to facilitate fish passage and will emulate the preconstruction conditions as closely as possible, within the finished channel topography.	During all phases of construction.	Construction contractor	Valley Water
Avoid Impacts to Nesting Migratory	BMP BI-2	Prior to the start of construction activities that begin during the migratory bird nesting period (between January 15 and	During all phases of	Construction	Valley Water

MITIGATION MONITORING AND REPORTING PROGRAM					
BMP/Mitigation Measure Name	BMP/Mitigation Measure ID	Description of Measures	Implementation Timing	Implementation Responsibility	Responsibility for Oversight
Birds		August 31 of any year), Valley Water shall retain a qualified wildlife biologist to conduct a survey for nesting raptors and migratory birds that could nest along the Project corridor. Surveys will cover all suitable raptor and migratory bird nesting habitat that will be impacted directly or by disturbance, including habitat potentially used by ground-nesting migratory bird species. All migratory bird nesting surveys will be performed no more than 7 days prior to any Project-related activity that could pose the potential to affect migratory birds. With the exception of raptor nests, inactive bird nests may be removed. No birds, nests with eggs, or nests with hatchlings will be disturbed.	construction.	contractor	
Avoid Impacts to Nesting Migratory Birds from Pending Construction	BMP BI-3	Nesting exclusion devices may be installed to prevent potential establishment or occurrence of nests in areas where construction activities would occur. All nesting exclusion devices will be maintained throughout the nesting season or until completion of work in an area makes the devices unnecessary. All exclusion devices will be removed and disposed of when work in the area is complete.	During all phases of construction.	Construction contractor	Valley Water
Choose Local Ecotypes of Native Plants and Appropriate Erosion-Control Seed Mixes	BMP BI-4	Whenever native species are prescribed for installation the following steps will be taken by a qualified biologist or vegetation specialist: 1. Evaluate whether the plant species currently grows wild in Santa Clara County; and, 2. If so, the qualified biologist or vegetation specialist will determine if any need to be local natives, i.e. grown from propagules collected in the same or adjacent watershed, and as close to the Project site as feasible. Also, consult a qualified biologist or vegetation specialist to determine which seeding option is ecologically appropriate and effective, specifically: 1. For areas that are disturbed, an erosion control seed mix may be used consistent with the Valley Water	During Project Design and Site Restoration	Valley Water and the construction contractor	Valley Water

MITIGATION MONITORING AND REPORTING PROGRAM					
BMP/Mitigation Measure Name	BMP/Mitigation Measure ID	Description of Measures	Implementation Timing	Implementation Responsibility	Responsibility for Oversight
		<i>Guidelines and Standards for Land Use Near Streams, Design Guide 5, 'Temporary Erosion Control Options.'</i> 2. In areas with remnant native plants, the qualified biologist or vegetation specialist may choose an abiotic application instead, such as an erosion control blanket or seedless hydro-mulch and tackifier to facilitate passive revegetation of local native species. If a gravel has been used to prevent soil compaction, this material may be left in place [if ecologically appropriate] instead of seeding. Seed selection shall be ecologically appropriate as determined by a qualified biologist, per <i>Guidelines and Standards for Land Use Near Streams, Design Guide 2: Use of Local Native Species.</i>			
Restore Riffle/Pool Configuration of Channel Bottom	BMP BI-5	The channel bottom shall be re-graded at the completion of work and restored to as close to the pre-Project conditions and contours as possible.	During site restoration.	Construction contractor	Valley Water
Avoid Animal Entry and Entrapment	BMP BI-6	All pipes, hoses, or similar structures less than 12 inches diameter will be closed or covered to prevent animal entry. All construction pipes, culverts, or similar structures, greater than 2-inches diameter, stored at a construction site overnight, will be inspected thoroughly for wildlife by a qualified biologist or properly trained construction personnel before the pipe is buried, capped, used, or moved. If inspection indicates presence of sensitive or State- or federally listed species inside stored materials or equipment, work on those materials will cease until a qualified biologist determines the appropriate course of action. To prevent entrapment of animals, all excavations, steep-walled holes or trenches more than 6-inches deep will be secured against animal entry at the close of each day. Any of the following measures may be employed, depending on the size of the hole and method feasibility: 1. Hole to be securely covered (no gaps) with plywood,	During all phases of construction.	Construction contractor	Valley Water

MITIGATION MONITORING AND REPORTING PROGRAM					
BMP/Mitigation Measure Name	BMP/Mitigation Measure ID	Description of Measures	Implementation Timing	Implementation Responsibility	Responsibility for Oversight
		or similar materials, at the close of each working day, or any time the opening will be left unattended for more than one hour; or 2. In the absence of covers, the excavation will be provided with escape ramps constructed of earth or untreated wood, sloped no steeper than 2:1, and located no farther than 15 feet apart; or 3. In situations where escape ramps are infeasible, the hole or trench will be surrounded by filter fabric fencing or a similar barrier with the bottom edge buried to prevent entry.			
Minimize Predator-Attraction	BMP BI-7	Remove trash daily from the worksite to avoid attracting potential predators to the site.	During all phases of construction.	Construction contractor	Valley Water
Minimize Spread of Invasive Plants	BMP BI-8	The spread of invasive nonnative plant species and plant pathogens will be avoided or minimized by implementing the following measures: 1. Construction equipment will arrive at the Project clean and free of soil, seed, and plant parts to reduce the likelihood of introducing new weed species. 2. Any imported fill material, soil amendments, gravel, etc., required for construction activities that will be placed within the upper 12 inches of the ground surface will be free of vegetation and plant material. 3. Certified weed-free imported erosion control materials (or rice straw in upland areas) will be used exclusively.	During all phases of construction.	Construction contractor	Valley Water
Environmental Awareness Training	MM-BIO-1	Prior to the start of construction, a qualified biologist shall conduct an Environmental Awareness Training for all construction workers. The Environmental Awareness Training shall include the following information: 1. A review of the Project boundaries;	During all phases of construction.	Valley Water or construction contractor	Valley Water

MITIGATION MONITORING AND REPORTING PROGRAM					
BMP/Mitigation Measure Name	BMP/Mitigation Measure ID	Description of Measures	Implementation Timing	Implementation Responsibility	Responsibility for Oversight
		2. Special-status species that may be present, their habitat, and proper identification; 3. Mitigation measures and BMPs that must be followed; 4. The general provisions and protections afforded by the Project's permit conditions; and 5. The proper procedures if a special-status species is encountered within the Project area. An instructional pamphlet shall be included with the Environmental Awareness Training and additional copies will be left for construction personnel that join the Project after the training has been conducted. At the completion of the Environmental Awareness Training the qualified biologist will designate on-site personnel (generally the construction crew manager) who will ensure that new construction members receive and review the pamphlet information. The environmental training designee shall also be the primary point of contact in the event that special-status species are found in the Project area and the presence of the qualified biologist is required.			
Conduct Surveys for San Francisco Dusky-Footed Woodrat and Protect Nests	MM-BIO-2	Prior to the start of construction activities, a qualified biologist will conduct preconstruction surveys for woodrat nests. Surveys will take place no more than 48 hours prior to the onset of site preparation and construction activities with the potential to disturb woodrats or their habitat. All nests shall be identified and their locations mapped and flagged to be avoided during construction activities. If woodrat nests are found that could be disturbed by construction activities, the qualified biologist will install a 5-foot no work buffer around the lodges. If woodrat lodges cannot be avoided by construction activities, the qualified		Valley Water or the construction contractor	Valley Water

MITIGATION MONITORING AND REPORTING PROGRAM					
BMP/Mitigation Measure Name	BMP/Mitigation Measure ID	Description of Measures	Implementation Timing	Implementation Responsibility	Responsibility for Oversight
		biologist will dismantle the lodge and relocate the lodge materials (i.e., sticks and logs) to the closest location possible that is outside of the construction work area. Any woodrat lodge relocations would be performed after consulting with CDFW.			
Implement Western Red Bat Avoidance Measures and Protect Roosts	MM-BIO-3	Prior to the start of construction activities, a qualified biologist will conduct preconstruction surveys for western red bats. Surveys will take place no more than 48 hours prior to the onset of site preparation and construction activities with the potential to disturb bats or their habitat and will include close inspection of potential bat roosts, such as trees and any foliage in the Project area. If bat(s) are found roosting, an appropriate buffer will be established as determined by the qualified biologist. Work will not occur within the buffer until the bat(s) are determined to be absent from the area.		Valley Water or the construction contractor	Valley Water
Restore and/or Enhance Riparian Habitat	MM-BIO-4	Valley Water will restore and/or enhance any permanently impacted riparian habitat at a mitigation-to-impact ratio of 2:1 and restore temporarily affected habitat at a minimum impact-to-mitigation ratio of 1:1 to ensure no net loss of riparian habitat functions and services. Valley Water will develop and implement a Habitat Mitigation and Monitoring Plan (HMMP) for impacts to riparian habitat that details the mitigation actions necessary to ensure the mitigation ratios are being met and there is no net loss of riparian functions and services. The HMMP may identify a suite of on-site mitigation actions to ensure the impact is fully mitigated. If appropriate, the trees or vegetation planted as part of the Project's restoration may be used to offset the amount of mitigation required under this mitigation measure. The HMMP will include success criteria as specified by the permitting agencies. The HMMP will also include adaptive management guidelines for actions to be taken if the success criteria are not met. Monitoring will assess progress of the restoration and/or enhancement actions according to the success criteria. If progress is not satisfactory, adaptive management actions (including replanting, nonnative species	During Project Planning and Site Restoration	Valley Water and the construction contractor	Valley Water

MITIGATION MONITORING AND REPORTING PROGRAM					
BMP/Mitigation Measure Name	BMP/Mitigation Measure ID	Description of Measures	Implementation Timing	Implementation Responsibility	Responsibility for Oversight
		removal, etc.) could be implemented. The HMMP will remain in force until the success criteria are met.			
Protection and Replacement of Protected Trees	MM-BIO-5	The Project shall voluntarily comply with the applicable provisions of the City of Cupertino's Protected Trees Ordinance (Cupertino Municipal Code Section 14.18). A tree removal permit shall be obtained for the removal of any "protected tree," and replacement plantings shall be provided as approved by the City. If permitted, an appropriate in-lieu tree replacement fee may be paid to the City of Cupertino's Tree Fund as compensation for "protected trees" removed by the Project, where sufficient land area is not available on-site for adequate replacement and when approved by the City. In addition, Valley Water or its contractor shall retain a Certified Arborist to oversee construction and ensure the following measures are implemented to prevent harm to protected trees not identified for removal. A Certified Arborist is an individual certified by the International Society of Arboriculture. - Adequate measures shall be defined to protect all trees to be preserved. These measures shall include the establishment of a tree protection zone (TPZ) around protected trees to be preserved that could be impacted by Project construction. No disturbance is permitted within the TPZ unless approved by the Certified Arborist. The TPZ shall be located at the dripline of the tree or 10 feet, whichever is greater. If necessary, the TPZ for construction-tolerant species (i.e., coast live oaks) may be reduced to 7 feet. - Where feasible, temporary construction fencing shall be installed at the perimeter of TPZs prior to grubbing or grading. Fences shall remain until all construction is completed. Fences shall not be relocated or removed without permission from the Certified Arborist.	During Project Planning and all Phases of Construction	Valley Water and the construction contractor	Valley Water

MITIGATION MONITORING AND REPORTING PROGRAM					
BMP/Mitigation Measure Name	BMP/Mitigation Measure ID	Description of Measures	Implementation Timing	Implementation Responsibility	Responsibility for Oversight
		- No grading, excavation, or storage of materials shall be permitted within TPZs. - Where encroachment cannot be avoided, special construction techniques such as hand digging under roots shall be employed where necessary to minimize root injury. Work within the TPZ shall use the smallest equipment and operate from outside the TPZ. The Certified Arborist shall be on-site during all operations within the TPZ to monitor the activity. - Any root pruning for trees to be preserved shall receive the prior approval of and be supervised by the Certified Arborist to ensure the long-term health of the tree. Roots shall be cut by manually digging a trench and cutting exposed roots with a sharp saw. - All grading and construction plans shall clearly indicate trees proposed to be removed or otherwise affected by construction. The tree information in the construction plans should indicate the number, size, species, and assigned tree number of all trees that are to be retained/preserved. - The contractor shall meet with the Certified Arborist before beginning work to discuss work procedures and tree protection. - Trees to be preserved may require pruning to provide access and construction clearance. All pruning shall be completed by a State of California Licensed Tree Contractor and under the direction of a Certified Arborist in accordance with the 2002 BMPs for Pruning published by the International Society of Arboriculture, and adhere to the most recent editions of the American National Standard for Tree Care Operations (Section Z133.1) and Pruning (Section A300).			

MITIGATION MONITORING AND REPORTING PROGRAM					
BMP/Mitigation Measure Name	BMP/Mitigation Measure ID	Description of Measures	Implementation Timing	Implementation Responsibility	Responsibility for Oversight
		In the unlikely event any protected tree not identified for removal is damaged in a manner that could result in tree mortality (as determined by a Certified Arborist), the damage would be reported to the City of Cupertino and mitigation consistent with the Protected Trees Ordinance would be obtained.			
Cultural Resources					
Accidental Discovery of Archaeological Artifacts, Tribal Cultural Resources, or Burial Remains	BMP CU-1	If historical or unique archaeological artifacts, or tribal cultural resources, are accidentally discovered during construction, work in affected areas will be restricted or stopped until proper protocols are met. Work at the location of the find will halt immediately within 100 feet of the find. A “no work” zone shall be established utilizing appropriate flagging to delineate the boundary of this zone. A Consulting Archaeologist will visit the discovery site as soon as practicable for identification and evaluation pursuant to PRC Section 21083.2 and CCR Section 15126.4. If the archaeologist determines that the artifact is not significant, construction may resume. If the archaeologist determines that the artifact is significant, the archaeologist will determine if the artifact can be avoided and, if so, will detail avoidance procedures. If the artifact cannot be avoided, the archaeologist will develop within 48 hours an Action Plan which will include provisions to minimize impacts and, if required, a Data Recovery Plan for recovery of artifacts in accordance with PRC Section 21083.2 and Section 15126.4 of the CEQA Guidelines. If a tribal cultural resource cannot be avoided, the Action Plan will include notification of the appropriate Native American tribe, and consultation with the tribe regarding acceptable recovery options. If burial finds are accidentally discovered during construction, work in affected areas will be restricted or stopped until proper protocols are met. Upon discovering any burial site as evidenced by human skeletal remains, the County Coroner will be immediately notified, and the field crew supervisor shall take immediate steps to secure and	During all phases of construction	Construction contractor	Valley Water

MITIGATION MONITORING AND REPORTING PROGRAM					
BMP/Mitigation Measure Name	BMP/Mitigation Measure ID	Description of Measures	Implementation Timing	Implementation Responsibility	Responsibility for Oversight
		protect such remains from vandalism during periods when work crews are absent. No further excavation or disturbance within 100 feet of the site or any nearby area reasonably suspected to overlie adjacent remains may be made except as authorized by the County Coroner, California Native American Heritage Commission, and/or the County Coordinator of Indian Affairs.			
Hazards and Hazardous Materials					
Comply with All Pesticide Application Restrictions and Policies	BMP HM-1	Pesticide products are to be used only after an assessment has been made regarding environmental, economic, and public health aspects of each of the alternatives by the Valley Water Pest Control Advisor (PCA). All pesticide use will be consistent with approved product specifications. Applications will be made by, or under the direct supervision of, State Certified applicators under the direction of, or in a manner approved by the PCA.	During all phases of construction	Construction contractor	Valley Water
Comply with All Pesticide Usage Requirements	BMP HM-2	All projects that propose ongoing use of pesticides will comply with all provisions of Q751D02: Control and Oversight of Pesticide Use, including, but not necessarily limited to the following: 1. All pest control methods will be performed only after a written Pest Control Recommendation for use has been prepared by the District's PCA in accordance with requirements of the California Food and Agricultural Code. 2. F751D01 – Pest Control Recommendation & Spray Operators Report will be completed for each pesticide application.	During all phases of construction	Construction contractor	Valley Water
Comply with Restrictions on Herbicide Use in Aquatic Areas	BMP HM-3	Consistent with provisions of Q751D02: Control and Oversight of Pesticide Use, only herbicides and surfactants registered for aquatic use will be applied within the banks of channels within 20 feet of any water present. Furthermore, aquatic herbicide use will be limited to June 15	During all phases of construction	Construction contractor	Valley Water

MITIGATION MONITORING AND REPORTING PROGRAM					
BMP/Mitigation Measure Name	BMP/Mitigation Measure ID	Description of Measures	Implementation Timing	Implementation Responsibility	Responsibility for Oversight
		through October 31 with an extension through December 31 or until the first occurrence of local rainfall greater than 0.5 inches is forecasted within a 24-hour period from planned application events according to the National Weather Service. If rain is forecast, then application of aquatic herbicide will be rescheduled.			
Restrict Vehicle and Equipment Cleaning to Appropriate Locations	BMP HM-4	Vehicles and equipment may be washed only at approved areas. No washing of vehicles or equipment will occur in the Project area.	During all phases of construction	Construction contractor	Valley Water
Ensure Proper Vehicle and Equipment Fueling and Maintenance	BMP HM-5	No fueling or servicing will be done in a waterway or immediate flood plain, unless equipment stationed in these locations is not readily relocated (i.e., pumps, generators). 1. For stationary equipment that must be fueled or serviced on site, containment will be provided in such a manner that any accidental spill will not be able to come in direct contact with soil, surface water, or the storm drainage system. 2. All fueling or servicing done at the site will provide containment to the degree that any spill will be unable to enter any waterway or damage riparian vegetation. 3. All vehicles and equipment will be kept clean. Excessive build-up of oil and grease will be prevented. 4. All equipment used in the Bay or flood basin will be inspected for leaks each day prior to initiation of work. Maintenance, repairs, or other necessary actions will be taken to prevent or repair leaks, prior to use. 5. If emergency repairs are required in the field, only those repairs necessary to move equipment to a	During all phases of construction	Construction contractor	Valley Water

MITIGATION MONITORING AND REPORTING PROGRAM					
BMP/Mitigation Measure Name	BMP/Mitigation Measure ID	Description of Measures	Implementation Timing	Implementation Responsibility	Responsibility for Oversight
		more secure location will be done in a waterway or flood plain.			
Ensure Proper Hazardous Materials Management	BMP HM-6	Measures will be implemented to ensure that hazardous materials are properly handled and the quality of water resources is protected by all reasonable means. 1. Prior to entering the work site, all field personnel will know how to respond when toxic materials are discovered. 2. Contact of chemicals with precipitation will be minimized by storing chemicals in watertight containers with appropriate secondary containment to prevent any spillage or leakage. 3. Petroleum products, chemicals, cement, fuels, lubricants, and non-storm drainage water or water contaminated with the aforementioned materials will not contact soil and not be allowed to enter surface waters or the storm drainage system. 4. All toxic materials, including waste disposal containers, will be covered when they are not in use, and located as far away as possible from a direct connection to the storm drainage system or surface water. 5. Quantities of toxic materials, such as equipment fuels and lubricants, will be stored with secondary containment that is capable of containing 110% of the primary container(s). 6. The discharge of any hazardous or non-hazardous waste as defined in Division 2, Subdivision 1, Chapter 2 of the California Code of Regulations will be conducted in accordance with applicable State and federal regulations. 7. In the event of any hazardous material emergencies or spills, personnel will call the Chemical Emergencies/Spills Hotline at 1-800-510-5151.	During all phases of construction	Construction contractor	Valley Water

MITIGATION MONITORING AND REPORTING PROGRAM					
BMP/Mitigation Measure Name	BMP/Mitigation Measure ID	Description of Measures	Implementation Timing	Implementation Responsibility	Responsibility for Oversight
Utilize Spill Prevention Measures	BMP HM-7	Prevent the accidental release of chemicals, fuels, lubricants, and non-storm drainage water following these measures: 1. Field personnel will be appropriately trained in spill prevention, hazardous material control, and clean up of accidental spills; 2. Equipment and materials for cleanup of spills will be available on site, and spills and leaks will be cleaned up immediately and disposed of according to applicable regulatory requirements; 3. Field personnel will ensure that hazardous materials are properly handled and natural resources are protected by all reasonable means; 4. Spill prevention kits will always be in close proximity when using hazardous materials (e.g., at crew trucks and other logical locations), and all field personnel will be advised of these locations; and, 5. The work site will be routinely inspected to verify that spill prevention and response measures are properly implemented and maintained.	During all phases of construction	Construction contractor	Valley Water
Incorporate Fire Prevention Measures	BMP HM-8	1. All earthmoving and portable equipment with internal combustion engines will be equipped with spark arrestors. 2. During the high fire danger period (April 1–December 1), work crews will have appropriate fire suppression equipment available at the work site. 3. An extinguisher shall be available at the project site at all times when welding or other repair activities that can generate sparks (such as metal grinding) is occurring. 4. Smoking shall be prohibited except in designated staging areas and at least 20 feet from any combustible chemicals or vegetation.	During all phases of construction	Construction contractor	Valley Water

MITIGATION MONITORING AND REPORTING PROGRAM					
BMP/Mitigation Measure Name	BMP/Mitigation Measure ID	Description of Measures	Implementation Timing	Implementation Responsibility	Responsibility for Oversight
Hydrology and Water Quality					
Limit Impact of Pump and Generator Operation and Maintenance	BMP WQ-1	Pumps and generators will be maintained and operated in a manner that minimizes impacts to water quality and aquatic species. 1. Pumps and generators will be maintained according to manufacturers' specifications to regulate flows to prevent dry-back or washout conditions. 2. Pumps will be operated and monitored to prevent low water conditions, which could pump muddy bottom water, or high-water conditions, which creates ponding. 3. Pump intakes will be screened to prevent uptake of fish and other vertebrates. Pumps will be screened according to National Marine Fisheries Service (NMFS) criteria. 4. Sufficient back-up pumps and generators will be on site to replace defective or damaged pumps and generators.	During all phases of construction	Construction contractor	Valley Water
Limit Impacts from Staging and Stockpiling Materials	BMP WQ-2	1. To protect on site vegetation and water quality, staging areas should occur on access roads, surface streets, or other disturbed areas that are already compacted and only support ruderal vegetation. Similarly, all equipment and materials (e.g., road rock and spoils) will be contained within the existing access roads or other pre-determined staging areas. 2. Building materials and other Project-related materials, including chemicals and sediment, will not be stockpiled or stored where they could spill into water bodies. 3. No runoff from the staging areas may be allowed to enter water ways without being subjected to adequate filtration (e.g., vegetated buffer, swale, hay wattles or bales, silt screens).	During all phases of construction	Construction contractor	Valley Water

MITIGATION MONITORING AND REPORTING PROGRAM					
BMP/Mitigation Measure Name	BMP/Mitigation Measure ID	Description of Measures	Implementation Timing	Implementation Responsibility	Responsibility for Oversight
		4. The discharge of decant water to water ways from any on site temporary sediment stockpile or storage areas is prohibited. 5. During the wet season, no stockpiled soils will remain exposed, unless surrounded by properly installed and maintained silt fencing or other means of erosion control. During the dry season; exposed, dry stockpiles will be watered, enclosed, covered, or sprayed with non-toxic soil stabilizers.			
Use Seeding for Erosion Control, Weed Suppression, and Site Improvement	BMP WQ-3	Disturbed areas shall be seeded with native seed as soon as is appropriate after activities are complete. An erosion control seed mix will be applied to exposed soils down to the ordinary high-water mark (OHWM) of the flood basin and the mean high higher tide line on the Bay side of the work area. The seed mix should consist of California native grasses, (for example <i>Hordeum brachyantherum</i>; <i>Elymus glaucus</i>; and annual <i>Vulpia microstachyes</i>) or annual, sterile hybrid seed mix (e.g., Regreen™, a wheat x wheatgrass hybrid).	During site restoration	Construction contractor	Valley Water
Maintain Clean Conditions at Work Sites	BMP WQ-4	The work site, areas adjacent to the work site, and access roads will be maintained in an orderly condition, free and clear from debris and discarded materials on a daily basis. Personnel will not sweep, grade, or flush surplus materials, rubbish, debris, or dust into storm drains or waterways. Materials or equipment left on the site overnight will be stored as inconspicuously as possible and will be neatly arranged. Any materials and equipment left on the site overnight will be stored to avoid erosion, leaks, or other potential impacts to water quality Upon completion of work, all building materials, debris, unused materials, concrete forms, and other construction-related materials will be removed from the work site.	During all phases of construction	Construction contractor	Valley Water
Manage Drilling Materials	BMP WQ-5	All materials or waters generated during drilling will be safely handled, properly managed, and disposed of according to all applicable federal, State, and local statutes regulating such. In no case will these materials and/or waters be allowed to	During bank rehabilitation (sheet pile wall installation)	Construction contractor	Valley Water

MITIGATION MONITORING AND REPORTING PROGRAM					
BMP/Mitigation Measure Name	BMP/Mitigation Measure ID	Description of Measures	Implementation Timing	Implementation Responsibility	Responsibility for Oversight
		enter, or potentially enter waterways. Such materials/waters must not be allowed to move off the property where the work is being completed.			
Protect Groundwater from Contaminates via Drilling	BMP WQ-6	Any substances or materials that may degrade groundwater quality will not be allowed to enter any boring. Lubricants used on drill bits, drill pipe, or tremie pipe will not be comprised of oily or greasy substances or other materials that may degrade groundwater quality. Well openings or entrances will be sealed or secured in such a way as to prevent the introduction of contaminants.	During bank rehabilitation (sheet pile wall installation)	Construction contractor	Valley Water
Prevent Water Pollution	BMP WQ-7	Oily, greasy, or sediment laden substances or other material that originate from the Project operations and may degrade the quality of surface water or adversely affect aquatic life, fish, or wildlife will not be allowed to enter, or be placed where they may later enter, any waterway. The Project will not increase the turbidity of any watercourse flowing past the construction site by taking all necessary precautions to limit the increase in turbidity as follows: 1. where natural turbidity is between 0 and 50 Nephelometric Turbidity Units (NTU), increases will not exceed 5 percent; 2. where natural turbidity is greater than 50 NTU, increases will not exceed 10 percent; 3. where the receiving water body is a dry creek bed or storm drain, waters in excess of 50 NTU will not be discharged from the project. Water turbidity changes will be monitored. The discharge water measurements will be made at the point where the discharge water exits the water control system for tidal sites and 100 feet downstream of the discharge point for non-tidal sites. Natural watercourse turbidity measurements will be made in the receiving water 100 feet upstream of the discharge site. Natural watercourse turbidity measurements will be made prior to initiation of project discharges, preferably at least 2 days prior to commencement of	During all phases of construction	Construction contractor	Valley Water

MITIGATION MONITORING AND REPORTING PROGRAM					
BMP/Mitigation Measure Name	BMP/Mitigation Measure ID	Description of Measures	Implementation Timing	Implementation Responsibility	Responsibility for Oversight
		operations.			
Prevent Stormwater Pollution	BMP WQ-8	To prevent stormwater pollution, the applicable measures from the following list will be implemented: 1. Soils exposed due to Project activities will be seeded and stabilized using hydroseeding, straw placement, mulching, and/or erosion control fabric. These measures will be implemented such that the site is stabilized and water quality protected prior to significant rainfall. In creeks, the channel bed and areas below the OHWM are exempt from this BMP. 2. The preference for erosion control fabrics will be to consist of natural fibers; however, steeper slopes and areas that are highly erodible may require more structured erosion control methods. No non-porous fabric will be used as part of a permanent erosion control approach. Plastic sheeting may be used to temporarily protect a slope from runoff, but only if there are no indications that special-status species would be impacted by the application. 3. Erosion control measures will be installed according to manufacturer's specifications. 4. To prevent stormwater pollution, the appropriate measures from, but not limited to, the following list will be implemented: • Silt Fences • Straw Bale Barriers • Brush or Rock Filters • Storm Drain Inlet Protection • Sediment Traps or Sediment Basins • Erosion Control Blankets and/or Mats • Soil Stabilization (i.e. tackified straw with seed, jute or geotextile blankets, etc.) • Straw mulch.	During all phases of construction	Construction contractor	Valley Water

MITIGATION MONITORING AND REPORTING PROGRAM					
BMP/Mitigation Measure Name	BMP/Mitigation Measure ID	Description of Measures	Implementation Timing	Implementation Responsibility	Responsibility for Oversight
		5. All temporary construction-related erosion control methods shall be removed at the completion of the project (e.g. silt fences). 6. Surface barrier applications installed as a method of animal conflict management, such as chain link fencing, woven geotextiles, and other similar materials, will be installed no longer than 300 feet, with at least an equal amount of open area prior to another linear installation.			
Manage Sanitary and Septic Waste	BMP WQ-9	Temporary sanitary facilities will be located in compliance with California Division of Occupational Safety and Health (Cal/OSHA) regulation 8 CCR 1526. All temporary sanitary facilities will be located where overflow or spillage will not enter a watercourse directly (overbank) or indirectly (through a storm drain).	During all phases of construction	Construction contractor	Valley Water
Noise and Vibration					
Provide Advance Notification of Construction Schedule and 24-hour Hotline to Residents	MM-NV-1	Valley Water will provide advance written notification of the proposed construction activities to all adjacent residences and posted at Creekside Park at least 30 days prior to the start of construction. Notification shall include a brief overview of the Project and its purpose, as well as the proposed construction activities and schedule. It shall also include the name and contact information of a Valley Water representative responsible for ensuring that reasonable measures are implemented to address the problem (the construction noise disturbance coordinator; see Mitigation Measure NV-3).	At least 30 days prior to the start of construction	Valley Water	Valley Water
Implement Work Site Noise Control Measures	MM-NV-2	To reduce noise impacts, Valley Water will require all contractors to adhere to the following measures. Valley Water will be responsible for ensuring implementation. All construction equipment will be equipped with manufacturer's standard noise control devices or with equally effective replacement devices consistent with manufacturer specifications.	During all phases of construction	Construction contractor	Valley Water

MITIGATION MONITORING AND REPORTING PROGRAM					
BMP/Mitigation Measure Name	BMP/Mitigation Measure ID	Description of Measures	Implementation Timing	Implementation Responsibility	Responsibility for Oversight
		- Stationary noise-generating equipment will be located as far as possible from sensitive receptors, and, if feasible, will be shielded by placement of other equipment or construction materials storage. - Impact tools (e.g., jackhammers) will be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. Where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust will be used; this muffler can lower noise levels from the exhaust. External jackets on the tools themselves will be used where feasible. Quieter procedures, such as use of drills rather than impact tools, will be used whenever feasible.			
Designate Noise Disturbance Coordinator to Address Resident Concerns	MM-NV-3	Valley Water will designate a representative to act as construction noise disturbance coordinator, responsible for resolving construction noise concerns. The disturbance coordinator's name and contact information will be included in the preconstruction notices sent to adjacent residents (see Mitigation Measure NV-1). They will be available during all construction hours to monitor and respond to concerns. In the event a noise complaint is received, she or he will be responsible for determining the cause of the complaint and ensuring that all reasonable measures are implemented to address the problem.	During all phases of construction	Valley Water	Valley Water
Install Temporary Noise Barriers	MM-NV-4	Valley Water or its contractors will be responsible for monitoring noise from construction activities to ensure that noise at the nearest property line does not exceed 80 dBA, consistent with the City of Cupertino Noise Ordinance. If noise monitoring determines that the 80-dBA threshold is exceeded at any adjacent property, Valley Water will install temporary noise barriers, where feasible, to reduce noise levels below the construction noise standard. Work responsible for the disturbance will be suspended or modified	During all phases of construction	Construction contractor	Valley Water

MITIGATION MONITORING AND REPORTING PROGRAM					
BMP/Mitigation Measure Name	BMP/Mitigation Measure ID	Description of Measures	Implementation Timing	Implementation Responsibility	Responsibility for Oversight
		until barriers have been installed. Valley Water will include a construction bid item to provide noise barriers on-site and install noise barriers immediately in response to noise concerns. Following are the relevant specifications. - The barrier will be 10 feet tall. Barriers will surround the work area to block the line of sight for all diesel-powered equipment on the ground, as viewed from any private residence or any building. - The barrier will be constructed of heavyweight plywood (at least 5/8-inch-thick) or other material providing a Sound Transmission Classification of at least 25 dBA. (As above, note that 5/8 inch is sufficiently thick to provide optimal noise buffering; increasing the thickness of the barrier above 5/8 inch would not provide a noticeable improvement in noise reduction.) - The barrier will be constructed with no gaps or holes that would allow noise to transmit through the barrier. - To minimize reflection of noise toward workers at the construction site, the surface of the barrier facing the workers will be covered with sound-absorbing material that meets a Noise Reduction Coefficient of at least 0.70.			
Traffic and Transportation					
Incorporate Public Safety Measures	BMP TR-1	Fences, barriers, lights, flagging, guards, and signs will be installed as determined appropriate by the public agency having jurisdiction, to give adequate warning to the public of the construction and of any dangerous condition to be encountered as a result thereof.	During all phases of construction	Construction contractor	Valley Water