PRELIMINARY HYDROLOGY STUDY

VTTM 19390
Prospect Avenue and 17th Street
TUSTIN, CA 92780

Prepared For:
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February 2025

Table of Contents

Appendices

Preliminary Hydrology Study
for
VTTM 19390
APN: 401-401-12, 13, 14, 15, 16, & 17
Prospect Avenue and 17th Street

ACKNOWLEDGEMENT & SIGNATURE PAGE

This Preliminary Hydrology Study was prepared by C&V Consulting, Inc. under the supervision of Dane P. McDougall, P.E., P.L.S.

5/7/25

Dane P. McDougall, R.C.E. 80705 Date
C&V Consulting, Inc.

I. Introduction

The purpose of this report is to provide quantitative information to verify storm drain infrastructure and hydrologic compliance of the project site and analyze potential impact on existing downstream infrastructure. The values and statements within this report confirm the subject site is designed and planned in accordance with the latest Orange County Hydrology Manual (OCHM) as mandated by the Orange County Flood Division. The goal of the agency is to provide 100-year return frequency flood protection for all habitable structures and other non-flood proof structures. Consequently, all drainage plans must demonstrate compliance with this 100-year flood protection criterion.

Project Description:

The site is bounded by Prospect Avenue to the west, 17th Street to the north, and single family residences to the east and south. Existing perimeter controls consist of a concrete screen wall along the southern property line and a concrete screen wall and wood fencing along the eastern property line.

In the existing condition, the site is generally flat with elevations above sea level as high as 163.6 in the near the mid-point of the site to as low as 160.6 near the southwest corner of the site. The existing site consists of five (5) office buildings with associated parking and planted medians throughout. The existing site is graded so that runoff flows overland away from the five (5) existing buildings into adjacent valley gutters which convey runoff to the southwest corner of the site. There is an existing parkway culvert that discharges onsite runoff into the right-of-way of Prospect Avenue. Two drain inlets are present onsite and it is likely these connect to storm drain facilities within Prospect Avenue.

According to the Orange County Flood Control Facility Map the nearest downstream catch basin is located just south of the property line on Prospect Avenue. This catch basin connects to a 30 inch Orange County Flood Control District RCP that confluences with the North Tustin Channel just north of Beneta Way. Runoff continues to flow in the North Tustin Channel until it reaches the El Modena-Irvine Channel (OCFCD, F07) east of Holt Avenue. Runoff Enters Peters Canyon Channel (OCFCD, F06) and then the San Diego Creek Channel (OCFCD, F06), ultimately discharging to the Upper Newport Bay/ Pacific Ocean. This site is located within the San Diego Creek Watershed per the Orange County Flood Control District (OCFCD) Drainage System Map No. 30. All existing onsite storm drain connections, piping and inlets will be demolished and capped at the right-of-way as part of this development's construction.

The proposed development will consist of 8.54 acres of land comprised of 145 residential condominium units to be constructed on traditional slab on grade. The project proposes onsite private drive aisles, parking areas, hardscaping, and landscaping, which can be accessed from the main entrance from the public right-of-way of Prospect Avenue. Drive aisles and parking areas will be asphalt concrete pavement, and sidewalk areas will be Portland concrete cement (PCC). Landscaping, including vegetation and trees, will be incorporated into open space areas.

There is no evidence of any historical flooding onsite. In addition, there is no offsite runon tributary to the site from the existing adjacent properties.

II. Methodology and Rationale:

All drainage areas were analyzed using the County of Orange Local Drainage and Hydrology Manual and nomographs. The site is small and is comprised of two sub-areas to satisfy the Orange County Hydrology Manual. The sub-areas were analyzed for acreage, land-use, volume, and time of concentration according to the Rational Method. The percentage of pervious was calculated for the pre- and post-construction conditions and the development type with the percentage pervious closest to the percentage calculated was used over matching development type in the hydrology calculations. In accordance with the Orange County Hydrology Manual all habitable structures have a finished floor elevation to allow one foot of freeboard during the 100-year storm event, the onsite conveyance pipes have been sized to convey runoff from the 25-year storm event. The onsite catch basins and parkway culvert have been sized to convey runoff from the 100-year storm event. Calculations supporting these sizes are located in Appendix D of this report.

The existing and proposed drainage areas were analyzed by utilizing the latest Orange County Hydrology Manual, Civil Design Software, and Hydraflow Express Extension for Autodesk AutoCAD Civil 3D.

The existing and proposed drainage areas were delineated per the Existing and Proposed Conditions Hydrology Maps, located within Appendix A. Each area was then analyzed for acreage, impervious cover, and Time of Concentration (Tc) per the Rational Method to determine the associated peak flow rates. The peak flow rates, expressed in cubic feet per second (cfs), were confluence at main junction nodes and have been labeled within the Hydrology Maps. This information will be used in conjunction with WSPG and Autodesk software to validate the hydraulic grade line and other hydraulic flow characteristics of the proposed storm drain system. Pipe sizing calculations and other supporting hydraulic calculations will be provided during final engineering.

In the proposed condition, site runoff will be captured by nine (9) proposed sump curb inlet catch basins and five (5) proposed grate inlets. Low flows will be conveyed via dvert pipes into nearby modular wetland units for water quality treatment. When the water quality treatment flow rate is exceeded, runoff will be directed through the proposed underground storm drain system. The modular wetland units will also be equipped with internal bypass for flows that exceed the treatment flow rate. All runoff will be directed into a proposed storm drain sump pump located at the project entrance which will discharge runoff through a proposed parkway drain into Prospect Avenue at pre development flow rates. During larger storm events, runoff will pond at the proposed catch basins near the entry driveway and discharge into the public right-of-way of Prospect Avenue. Upon entering surrounding streets, site stormwater runoff will follow the historic drainage path to the Upper Newport Bay/ Pacific Ocean.

Discharged flows from the proposed site will follow historic drainage patterns.

During Final Engineering WSPG will be utilized to determine hydraulic adequacy of the proposed private storm drain system using the 25-year peak flow rates generated by C. To be conservative, the peak flow rates tributary to each storm drain line or lateral will be utilized instead of the hydrologic confluence peak flow rates calculated by CivilDesign. WSPG is used as an industry standard hydraulic analysis program in Orange County, in which the program computes and plots

uniform and non-uniform steady flow water surface profiles and pressure gradients in both open channels and pressurized closed structures. Using Bernoulli's equation for the total energy at each section and Manning's formula for the friction loss between sections in a system, a hydraulic grade line is computationally produced. As directed by the county flood control district, the program analyzes the model using the standard step method for open channel flow and the pressure plus momentum theory for confluences and closed structures under pressure. Using these hydraulic principals, the program determines such data as: cross sectional area, wetted perimeter, normal depth, critical depth, pressure, and momentum which was then used to verify the on-site storm drain design.

III. Design Parameters

1. The onsite drainage area was analyzed for the 25- and 100-year storm events using Rational Method Analysis per the County of Orange Hydrology Manual (OCHM). The design of the onsite private storm drain pipes and catch basins will be designed for 25-year storm event, per OCHM (1986) section A.2 which states that major street travel way and sump catch basin to be designed to a 25-year storm event.
2. The drainage area is located in Soil Groups A according to NRCS Web Soil Survey Map as shown within Appendix D.
3. The rainfall intensity for all storm events varies according to Figure B-3 (page B-7) of the Hydrology Manual.
4. The existing condition utilized commercial, and the proposed condition utilized condominium land uses within the Civil Design for the hydrologic calculations.
5. The impervious area has been calculated to be approximately 89% (7.57 acres) in the existing condition.
6. The impervious area has been estimated to be approximately 85% (7.26 acres) for the proposed condition based on a conversative multi-family residential coverage.
7. Existing and Proposed Conditions Hydrology Maps have been made a part of this report based on the hydrologic calculation and are located within Appendix A.
8. The proposed development's surface runoff has been designed based on the historical drainage pathways of the existing condition.
9. The proposed development's roof runoff will be collected via a series of downspouts. These downspouts will connect to the proposed area drain system and provide an air gap for emergency overflow. The area drain system will be designed as part of the separately prepared Precise Grading Plan during final engineering.
10. Curb inlet catch basin sizing will be designed based on the 25-year peak flow rates. AutoCAD Civil 3D Hydraflow Express, 2025 will be utilized to develop the catch basin calculations. Calculations will be provided during final engineering.
11. 100-year water surface elevations at primary low-points throughout the site will be analyzed during final engineering to verify that finish floor elevations have been set at least 1' above the depth of flow for the 100-year storm event.

IV. Results

The results from this hydrology and hydraulic analysis demonstrate the following:

- The drainage design for proposed development has been designed to meet the County of Orange Flood Control Standards and City of Tustin requirements.
- According to the Federal Emergency Management Agency (FEMA), FIRM rate map Number 06059C0164J, revised December 3, 2009, the site is located within the flood zone as follows: Zone X – "0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot with drainage areas of less than one square mile."
- The proposed private drainage system will be designed to manage storm water runoff for a 25-year storm event.
- There is a decrease in the peak flow rates between existing and proposed development conditions for the 100-year storm event by approximately 27.73% (or 3.80 cfs).
- There is a decrease in the peak flow rates between existing and proposed development conditions for the 25-year storm event by approximately 27.48% (or 9.31 cfs).
- There is an overall decrease in peak flow rates discharging to Prospect Avenue from the site in the proposed condition based on the proposed grading/ drainage design.

Existing & Proposed Hydrologic Summary Table:

Subarea	Area	Q2 (cfs)	Q25 (cfs)	Q100 (cfs)	Tc (min)
X1	0.18 ac	0.352	0.758	0.974	5.199
X2	8.36 ac	10.263	24.760	32.617	9.05
Total	**8.54 ac**	**10.615**	**25.517**	**33.590**	**9.05**
P1	0.16 ac	0.276	0.611	0.788	5.922
P2	8.38 ac	7.021	17.894	23.487	14.99
Total	**8.54 ac**	**7.297**	**18.505**	**24.276**	**14.99**
% Decrease		**31.26%**	**27.48%**	**27.73%**	

Parkway Sizing

The proposed development will utilize two (2) 5' wide primary parkway drains to convey overflow and discharge stormwater runoff to El Camino Real and Newport Avenue. The parkway drains have been sized for the 100-year peak flow rate based on design standards and slope conditions of the existing public right-of-way.

Refer to Appendix C, Hydraulic Calculations for Parkway Drain Sizing calculations.

Catch Basin Sizing

The proposed development has been designed to incorporate curb inlet catch basins and grate inlets to collect storm water runoff based on sump conditions. Catch basin sizing has been based on the 25-year peak flow rates tributary to each subarea and will be provided during final engineering.

100-Year Water Surface Elevations

100-year water surface elevations at primary low-points throughout the site will be analyzed to verify that finish floor elevations have been set at least 1' above the depth of flow for the 100-year storm event. 100-year depth of flow calculations will be provided during Final Engineering.

Pipe Capacity Sizing

The proposed underground storm drain pipe sizing will be provided during final engineering based on the 25-year peak flow rate to verify pipe capacity, size, and hydraulic grade line elevations.

V. References

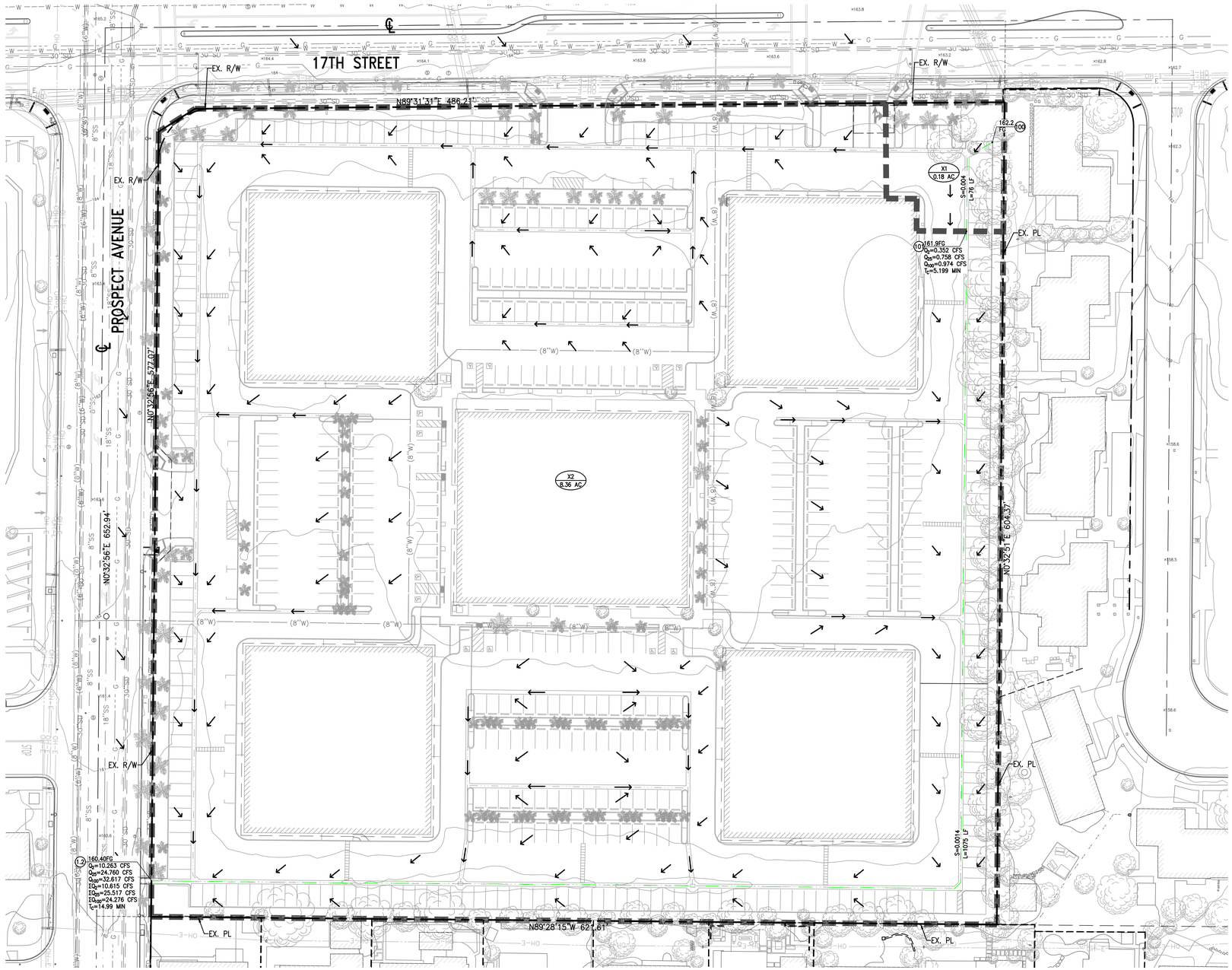
1. County of Orange, "Hydrology Manual" dated January 1999.
2. AutoCAD Hydraflow Express Civil 3D, 2022
3. Tentative Tract Map No. 19390 prepared by C&V Consulting, Inc. dated February 2025
4. OCFCD Base Map of Drainage Facilities

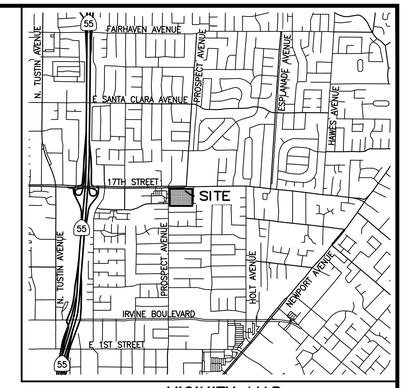
APPENDIX A: Hydrology Map

Existing Conditions Hydrology Map

PRE-DEVELOPMENT HYDROLOGY MAP
FOR TENTATIVE TRACT NO. 19390

PROSPECT AVENUE AND 17TH STREET
CITY OF TUSTIN
COUNTY OF ORANGE





VICINITY MAP
N.T.S

LEGEND

- EXISTING RIGHT-OF-WAY/ BOUNDARY
- PROPOSED PROPERTY LINE
- DRAINAGE MANAGEMENT AREA (DMA)
- PROPOSED STORM DRAIN
- DRAINAGE FLOW ARROWS
- SURFACE FLOW PATH
- PIPE FLOW PATH
- PROPOSED CATCH BASIN
- DMA X / X.XX AC — DRAINAGE MANAGEMENT AREA (DMA)
- PERVIOUS AREA
- INITIAL SUBAREA NODE
- SPOT ELEVATION
- 1 / 00.00 — Q100 =X.XX CFS, Tc=X.X MIN
  - PEAK RUNOFF IN CUBIC FEET PER SECOND (CFS)
  - TIME OF CONCENTRATION IN MINUTES (MIN) PROVIDED FOR 100-YR STORM EVENT

SCALE: 1" = 40'

0 20 40 80

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CITY OF TUSTIN
DEPARTMENT OF COMMUNITY DEVELOPMENT

VESTING TENTATIVE TRACT MAP NO. 19390
PRE-DEVELOPMENT HYDROLOGY MAP
PROSPECT AVE & 17TH STREET
TUSTIN, CALIFORNIA 92780

PROJECT NO. KBAR-00

SHEET 1 OF 1

PLAN SET: PDP1
DATE: 7/15/2025

P:\KBAR-00\DWG\SHEETS\DVP\DVP-1-HYDS-01_PRE.DWG
BY: SARAH MCMASTERS

Proposed Condition Hydrology Map

POST DEVELOPMENT HYDROLOGY MAP
FOR TENTATIVE TRACT NO. 19390

PROSPECT AVENUE AND 17TH STREET
CITY OF TUSTIN
COUNTY OF ORANGE

LEGEND

- EXISTING RIGHT-OF-WAY/ BOUNDARY
- PROPOSED PROPERTY LINE
- DRAINAGE MANAGEMENT AREA (DMA)
- PROPOSED STORM DRAIN
- DRAINAGE FLOW ARROWS
- SURFACE FLOW PATH
- PIPE FLOW PATH
- PROPOSED CATCH BASIN
- DMA X / X.XX AC — DRAINAGE MANAGEMENT AREA (DMA)

- INITIAL SUBAREA NODE
- 00.00 — SPOT ELEVATION
- Q_{100} =X.XX CFS — PEAK RUNOFF IN CUBIC FEET PER SECOND (CFS)
- Tc=X.X MIN — TIME OF CONCENTRATION IN MINUTES (MIN) PROVIDED FOR 100-YR STORM EVENT

SCALE: 1" = 40'

0 20 40 80

PREPARED FOR:	PREPARED BY:		
KINGSBARN CAPITAL & DEVELOPMENT KINGSBARN CAPITAL & DEVELOPMENT 2500 SAND HILL ROAD, SUITE 320 MENLO PARK, CA, 94025 (650) 782-3300	REGISTERED PROFESSIONAL ENGINEER DANE P. McDOUGALL C 80705 CIVIL STATE OF CALIFORNIA C&V CONSULTING, INC. CIVIL ENGINEERING LAND PLANNING & SURVEYING 9830 IRVINE CENTER DRIVE IRVINE, CALIFORNIA 92618 (949) 916-3800 INFO@CVC-INC.NET WWW.CVC-INC.NET	CITY OF TUSTIN DEPARTMENT OF COMMUNITY DEVELOPMENT VESTING TENTATIVE TRACT MAP NO. 19390 POST DEVELOPMENT HYDROLOGY MAP PROSPECT AVE & 17TH STREET TUSTIN, CALIFORNIA 92780	PROJECT NO. KBAR-00 SHEET 1 OF 1

APPENDIX B: Hydrology Calculations

Existing Conditions 2-, 25-, & 100- Year Storm Events

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2018 Version 9.0
Rational Hydrology Study, Date: 02/20/25 File Name: BAR01X02.roc

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VTTM 19390
TUSTIN
EXISTING Q02
KBAR-001

Program License Serial Number 6677

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 2.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

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Process from Point/Station 100.000 to Point/Station 101.000
**** INITIAL AREA EVALUATION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 32.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fp)= 0.400(In/Hr)
Max Catchment Loss (Fm) = 0.040(In/Hr)
Initial subarea data:
Initial area flow distance = 76.000(Ft.)
Top (of initial area) elevation = 162.200(Ft.)
Bottom (of initial area) elevation = 161.900(Ft.)
Difference in elevation = 0.300(Ft.)
Slope = 0.00395 s(%)= 0.39
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 5.199 min.
Rainfall intensity = 2.213(In/Hr) for a 2.0 year storm

```
Effective runoff coefficient used for area (Q=KCIA) is C = 0.884
Subarea runoff =      0.352(CFS)
Total initial stream area =        0.180(Ac.)
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++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      101.000 to Point/Station      102.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =   161.900(Ft.)
Downstream point elevation =   160.400(Ft.)
Channel length thru subarea  =  1075.500(Ft.)
Channel base width      =    3.000(Ft.)
Slope or 'Z' of left channel bank =   0.000
Slope or 'Z' of right channel bank =   0.000
Estimated mean flow rate at midpoint of channel =      5.528(CFS)
Manning's 'N'    = 0.013
Maximum depth of channel  =    0.130(Ft.)
Flow(q) thru subarea =      5.528(CFS)
Depth of flow =   0.624(Ft.), Average velocity =   2.951(Ft/s)
!!Warning: Water is above left or right bank elevations
Channel flow top width =    3.000(Ft.)
Flow Velocity =    2.95(Ft/s)
Travel time  =    6.07 min.
Time of concentration =   11.27 min.
Critical depth =      0.473(Ft.)
ERROR - Channel depth exceeds maximum allowable depth
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.400(In/Hr)
Max Catchment Loss (Fm) =     0.040(In/Hr)
Rainfall intensity =      1.420(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.875
Subarea runoff =     10.263(CFS) for    8.370(Ac.)
Total runoff =     10.615(CFS)  Total area =        8.55(Ac.)
Area averaged Fm value =    0.040(In/Hr)
Depth of flow =   0.924(Ft.), Average velocity =   3.831(Ft/s)
!!Warning: Water is above left or right bank elevations
ERROR - Channel depth exceeds maximum allowable depth
Critical depth =      0.734(Ft.)
End of computations, total study area =            8.55 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
```

Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged SCS curve number (AMC 2) = 32.0

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2018 Version 9.0
Rational Hydrology Study, Date: 02/20/25 File Name: bar01x25.roc

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VTTM 19390
TUSTIN
EXISTING Q25
KBAR-001

Program License Serial Number 6677

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 25.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

++

Process from Point/Station 100.000 to Point/Station 101.000
**** INITIAL AREA EVALUATION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 32.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fp)= 0.400(In/Hr)
Max Catchment Loss (Fm) = 0.040(In/Hr)
Initial subarea data:
Initial area flow distance = 76.000(Ft.)
Top (of initial area) elevation = 162.200(Ft.)
Bottom (of initial area) elevation = 161.900(Ft.)
Difference in elevation = 0.300(Ft.)
Slope = 0.00395 s(%)= 0.39
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 5.199 min.
Rainfall intensity = 4.718(In/Hr) for a 25.0 year storm

```
Effective runoff coefficient used for area (Q=KCIA) is C = 0.892
Subarea runoff =      0.758(CFS)
Total initial stream area =        0.180(Ac.)
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++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      101.000 to Point/Station      102.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =   161.900(Ft.)
Downstream point elevation =   160.400(Ft.)
Channel length thru subarea  =  1075.500(Ft.)
Channel base width      =    3.000(Ft.)
Slope or 'Z' of left channel bank =   0.000
Slope or 'Z' of right channel bank =   0.000
Estimated mean flow rate at midpoint of channel =     13.176(CFS)
Manning's 'N'    = 0.013
Maximum depth of channel  =    0.130(Ft.)
Flow(q) thru subarea =     13.176(CFS)
Depth of flow =   1.052(Ft.), Average velocity =   4.177(Ft/s)
!!Warning: Water is above left or right bank elevations
Channel flow top width =    3.000(Ft.)
Flow Velocity =    4.18(Ft/s)
Travel time  =    4.29 min.
Time of concentration =    9.49 min.
Critical depth =      0.844(Ft.)
ERROR - Channel depth exceeds maximum allowable depth
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.400(In/Hr)
Max Catchment Loss (Fm) =     0.040(In/Hr)
Rainfall intensity =      3.356(In/Hr) for a    25.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.889
Subarea runoff =     24.760(CFS) for    8.370(Ac.)
Total runoff =     25.518(CFS)  Total area =        8.55(Ac.)
Area averaged Fm value =    0.040(In/Hr)
Depth of flow =   1.563(Ft.), Average velocity =   5.441(Ft/s)
!!Warning: Water is above left or right bank elevations
ERROR - Channel depth exceeds maximum allowable depth
Critical depth =      1.313(Ft.)
End of computations, total study area =            8.55 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
```

Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged SCS curve number (AMC 2) = 32.0

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2018 Version 9.0
Rational Hydrology Study, Date: 02/20/25 File Name: BAR01X100.roc

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VTTM 19390
TUSTIN
EXISTING Q100
KBAR-001

Program License Serial Number 6677

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

++

Process from Point/Station 100.000 to Point/Station 101.000
**** INITIAL AREA EVALUATION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 32.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fp)= 0.400(In/Hr)
Max Catchment Loss (Fm) = 0.040(In/Hr)
Initial subarea data:
Initial area flow distance = 76.000(Ft.)
Top (of initial area) elevation = 162.200(Ft.)
Bottom (of initial area) elevation = 161.900(Ft.)
Difference in elevation = 0.300(Ft.)
Slope = 0.00395 s(%)= 0.39
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 5.199 min.
Rainfall intensity = 6.050(In/Hr) for a 100.0 year storm

```
Effective runoff coefficient used for area (Q=KCIA) is C = 0.894
Subarea runoff =      0.974(CFS)
Total initial stream area =        0.180(Ac.)
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++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      101.000 to Point/Station      102.000
**** IMPROVED CHANNEL TRAVEL TIME ****
________________________________________________________________________
Upstream point elevation =   161.900(Ft.)
Downstream point elevation =   160.400(Ft.)
Channel length thru subarea  =  1075.500(Ft.)
Channel base width      =    3.000(Ft.)
Slope or 'Z' of left channel bank =   0.000
Slope or 'Z' of right channel bank =   0.000
Estimated mean flow rate at midpoint of channel =     17.327(CFS)
Manning's 'N'    = 0.013
Maximum depth of channel  =    0.130(Ft.)
Flow(q) thru subarea =     17.327(CFS)
Depth of flow =   1.239(Ft.), Average velocity =   4.660(Ft/s)
!!Warning: Water is above left or right bank elevations
Channel flow top width =    3.000(Ft.)
Flow Velocity =    4.66(Ft/s)
Travel time  =    3.85 min.
Time of concentration =    9.05 min.
Critical depth =      1.016(Ft.)
ERROR - Channel depth exceeds maximum allowable depth
 Adding area flow to channel
COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.400(In/Hr)
Max Catchment Loss (Fm) =     0.040(In/Hr)
Rainfall intensity =      4.405(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.892
Subarea runoff =     32.617(CFS) for    8.370(Ac.)
Total runoff =     33.590(CFS)  Total area =        8.55(Ac.)
Area averaged Fm value =    0.040(In/Hr)
Depth of flow =   1.844(Ft.), Average velocity =   6.073(Ft/s)
!!Warning: Water is above left or right bank elevations
ERROR - Channel depth exceeds maximum allowable depth
Critical depth =      1.578(Ft.)
End of computations, total study area =            8.55 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
```

Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged SCS curve number (AMC 2) = 32.0

Proposed Conditions 2-, 25-, & 100- Year Storm Events

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2018 Version 9.0
Rational Hydrology Study, Date: 02/20/25 File Name: BAR01P02.roc

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VTTM 19390
TUSTIN
PROPOSED Q02
KBAR-001

Program License Serial Number 6677

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 2.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

++

Process from Point/Station 100.000 to Point/Station 101.000
**** INITIAL AREA EVALUATION ****

CONDOMINIUM subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 32.00
Pervious ratio(Ap) = 0.3500 Max loss rate(Fp)= 0.400(In/Hr)
Max Catchment Loss (Fm) = 0.140(In/Hr)
Initial subarea data:
Initial area flow distance = 85.000(Ft.)
Top (of initial area) elevation = 163.590(Ft.)
Bottom (of initial area) elevation = 163.080(Ft.)
Difference in elevation = 0.510(Ft.)
Slope = 0.00600 s(%)= 0.60
TC = k(0.360)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 5.922 min.
Rainfall intensity = 2.054(In/Hr) for a 2.0 year storm

```
Effective runoff coefficient used for area (Q=KCIA) is C = 0.839
Subarea runoff =      0.276(CFS)
Total initial stream area =        0.160(Ac.)
```



```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      101.000 to Point/Station      102.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
________________________________________________________________________
Top of street segment elevation =   163.080(Ft.)
End of street segment elevation =   161.470(Ft.)
Length of street segment  =   921.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  28.000(Ft.)
Distance from crown to crossfall grade break  =  26.500(Ft.)
Slope from gutter to grade break (v/hz) =   0.083
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [1] side(s) of the street
Distance from curb to property line  =   5.500(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   1.500(Ft.)
Gutter hike from flowline =  0.125(In.)
 Manning's N in gutter =  0.0130
 Manning's N from gutter to grade break =  0.0150
 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =      3.835(CFS)
Depth of flow =   0.327(Ft.), Average velocity =   1.284(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  17.327(Ft.)
Flow velocity =   1.28(Ft/s)
Travel time =   11.96 min.     TC =   17.88  min.
 Adding area flow to street
CONDOMINIUM subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.3500  Max loss rate(Fp)=     0.400(In/Hr)
Max Catchment Loss (Fm) =     0.140(In/Hr)
Rainfall intensity =      1.089(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.784
Subarea runoff =      7.021(CFS) for    8.380(Ac.)
Total runoff =      7.297(CFS)  Total area =        8.54(Ac.)
Area averaged Fm value =    0.140(In/Hr)
Street flow at end of street =      7.297(CFS)
Half street flow at end of street =      7.297(CFS)
Depth of flow =   0.421(Ft.), Average velocity =   1.506(Ft/s)
```

Flow width (from curb towards crown)= 22.048(Ft.)
End of computations, total study area = 8.54 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.350
Area averaged SCS curve number (AMC 2) = 32.0

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2018 Version 9.0
Rational Hydrology Study, Date: 02/20/25 File Name: BAR01P25.roc

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VTTM 19390
TUSTIN
PROPOSED Q25
KBAR-001

Program License Serial Number 6677

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 25.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

++

Process from Point/Station 100.000 to Point/Station 101.000
**** INITIAL AREA EVALUATION ****

CONDOMINIUM subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 32.00
Pervious ratio(Ap) = 0.3500 Max loss rate(Fp)= 0.400(In/Hr)
Max Catchment Loss (Fm) = 0.140(In/Hr)
Initial subarea data:
Initial area flow distance = 85.000(Ft.)
Top (of initial area) elevation = 163.590(Ft.)
Bottom (of initial area) elevation = 163.080(Ft.)
Difference in elevation = 0.510(Ft.)
Slope = 0.00600 s(%)= 0.60
TC = k(0.360)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 5.922 min.
Rainfall intensity = 4.383(In/Hr) for a 25.0 year storm

```
Effective runoff coefficient used for area (Q=KCIA) is C = 0.871
Subarea runoff =      0.611(CFS)
Total initial stream area =        0.160(Ac.)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      101.000 to Point/Station      102.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
________________________________________________________________________
Top of street segment elevation =   163.080(Ft.)
End of street segment elevation =   161.470(Ft.)
Length of street segment  =   921.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  28.000(Ft.)
Distance from crown to crossfall grade break  =  26.500(Ft.)
Slope from gutter to grade break (v/hz) =   0.083
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [1] side(s) of the street
Distance from curb to property line  =   5.500(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   1.500(Ft.)
Gutter hike from flowline =  0.125(In.)
 Manning's N in gutter =  0.0130
 Manning's N from gutter to grade break =  0.0150
 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =      9.604(CFS)
Depth of flow =   0.469(Ft.), Average velocity =   1.612(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  24.440(Ft.)
Flow velocity =   1.61(Ft/s)
Travel time =    9.52 min.     TC =   15.45  min.
 Adding area flow to street
CONDOMINIUM subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.3500  Max loss rate(Fp)=     0.400(In/Hr)
Max Catchment Loss (Fm) =     0.140(In/Hr)
Rainfall intensity =      2.548(In/Hr) for a    25.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.851
Subarea runoff =     17.894(CFS) for    8.380(Ac.)
Total runoff =     18.505(CFS)  Total area =        8.54(Ac.)
Area averaged Fm value =    0.140(In/Hr)
Street flow at end of street =     18.505(CFS)
Half street flow at end of street =     18.505(CFS)
Depth of flow =   0.604(Ft.), Average velocity =   1.877(Ft/s)
```

Warning: depth of flow exceeds top of curb
Note: depth of flow exceeds top of street crown.
Distance that curb overflow reaches into property =   5.18(Ft.)
Flow width (from curb towards crown)= 28.000(Ft.)
End of computations, total study area =   8.54 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.350
Area averaged SCS curve number (AMC 2) = 32.0

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2018 Version 9.0
Rational Hydrology Study, Date: 02/20/25 File Name: bar01p100.roc

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VTTM 19390
TUSTIN
PROPOSED Q100
KBAR-001

Program License Serial Number 6677

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0

Decimal fraction of study above 2000 ft., 600M = 0.0000
English Units Used for input data

++

Process from Point/Station 100.000 to Point/Station 101.000
**** INITIAL AREA EVALUATION ****

CONDOMINIUM subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 32.00
Pervious ratio(Ap) = 0.3500 Max loss rate(Fp)= 0.400(In/Hr)
Max Catchment Loss (Fm) = 0.140(In/Hr)
Initial subarea data:
Initial area flow distance = 85.000(Ft.)
Top (of initial area) elevation = 163.590(Ft.)
Bottom (of initial area) elevation = 163.080(Ft.)
Difference in elevation = 0.510(Ft.)
Slope = 0.00600 s(%)= 0.60
TC = k(0.360)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 5.922 min.
Rainfall intensity = 5.616(In/Hr) for a 100.0 year storm

```
Effective runoff coefficient used for area (Q=KCIA) is C = 0.878
Subarea runoff =      0.788(CFS)
Total initial stream area =        0.160(Ac.)
```



```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      101.000 to Point/Station      102.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
________________________________________________________________________
Top of street segment elevation =   163.080(Ft.)
End of street segment elevation =   161.470(Ft.)
Length of street segment  =   921.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  28.000(Ft.)
Distance from crown to crossfall grade break  =  26.500(Ft.)
Slope from gutter to grade break (v/hz) =   0.083
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [1] side(s) of the street
Distance from curb to property line  =   5.500(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   1.500(Ft.)
Gutter hike from flowline =  0.125(In.)
 Manning's N in gutter =  0.0130
 Manning's N from gutter to grade break =  0.0150
 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =     12.559(CFS)
Depth of flow =   0.525(Ft.), Average velocity =   1.693(Ft/s)
Warning: depth of flow exceeds top of curb
Distance that curb overflow reaches into property =    1.25(Ft.)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  27.233(Ft.)
Flow velocity =   1.69(Ft/s)
Travel time =    9.07 min.     TC =   14.99  min.
 Adding area flow to street
CONDOMINIUM subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.3500  Max loss rate(Fp)=     0.400(In/Hr)
Max Catchment Loss (Fm) =     0.140(In/Hr)
Rainfall intensity =      3.298(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.862
Subarea runoff =     23.487(CFS) for    8.380(Ac.)
Total runoff =     24.276(CFS)  Total area =        8.54(Ac.)
Area averaged Fm value =    0.140(In/Hr)
Street flow at end of street =     24.276(CFS)
```

Half street flow at end of street = 24.276(CFS)
Depth of flow = 0.657(Ft.), Average velocity = 2.085(Ft/s)
Warning: depth of flow exceeds top of curb
Note: depth of flow exceeds top of street crown.
Distance that curb overflow reaches into property = 7.84(Ft.)
Flow width (from curb towards crown)= 28.000(Ft.)
End of computations, total study area = 8.54 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.350
Area averaged SCS curve number (AMC 2) = 32.0

APPENDIX C: Hydraulic Calculations

Parkway Drain Sizing

Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Thursday, Feb 20 2025

Parkway Drain Sizing Q100

Rectangular

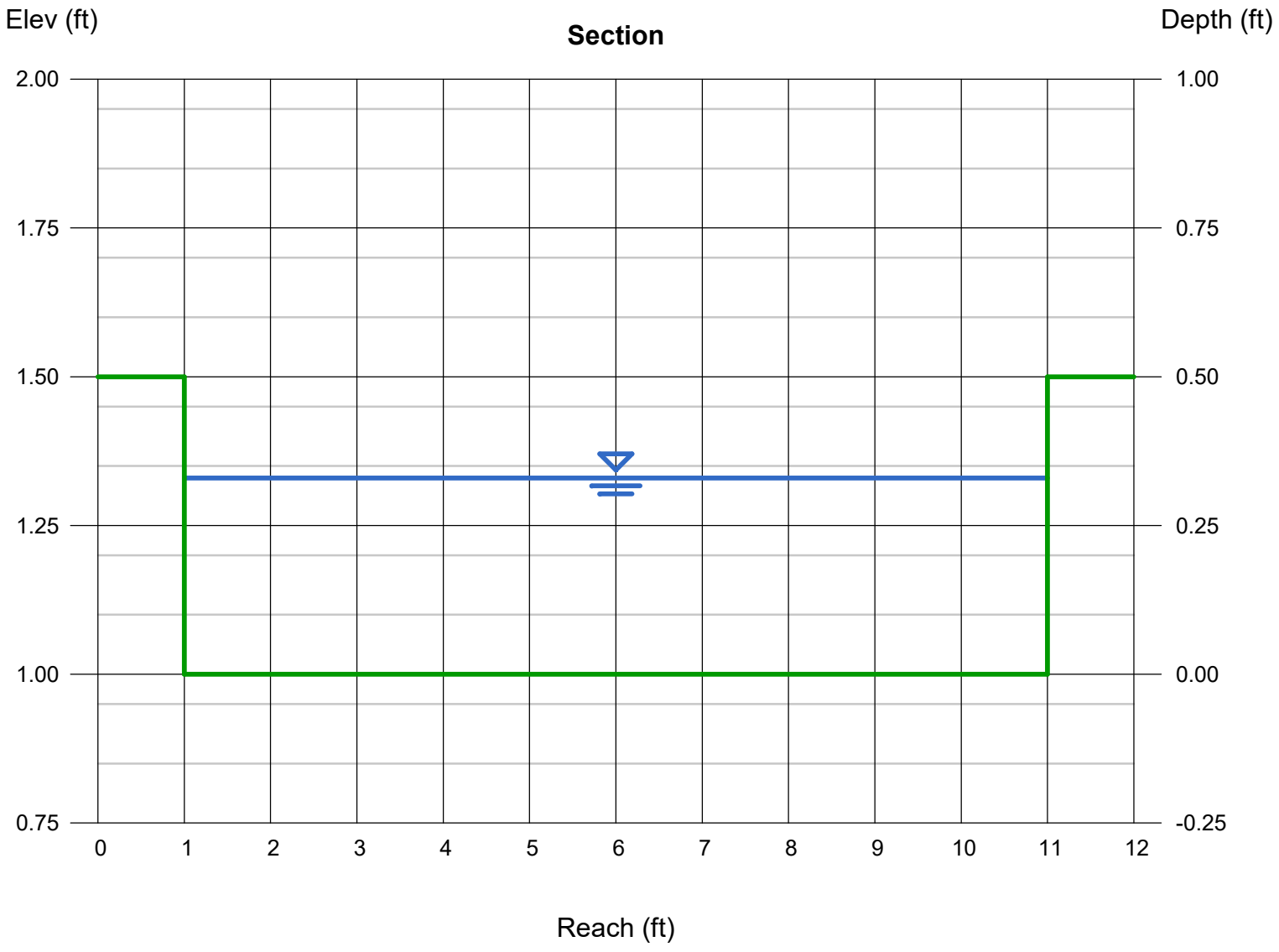
Bottom Width (ft)	= 10.00
Total Depth (ft)	= 0.50
Invert Elev (ft)	= 1.00
Slope (%)	= 2.00
N-Value	= 0.013

Calculations

Compute by:	Known Q
Known Q (cfs)	= 24.28

Highlighted

Depth (ft)	= 0.33
Q (cfs)	= 24.28
Area (sqft)	= 3.30
Velocity (ft/s)	= 7.36
Wetted Perim (ft)	= 10.66
Crit Depth, Yc (ft)	= 0.50
Top Width (ft)	= 10.00
EGL (ft)	= 1.17



Catch Basing Sizing

To be provided during final engineering

100-Year Water Surface Elevation

To be provided during final engineering

Pipe Capacity Sizing

To be provided during final engineering

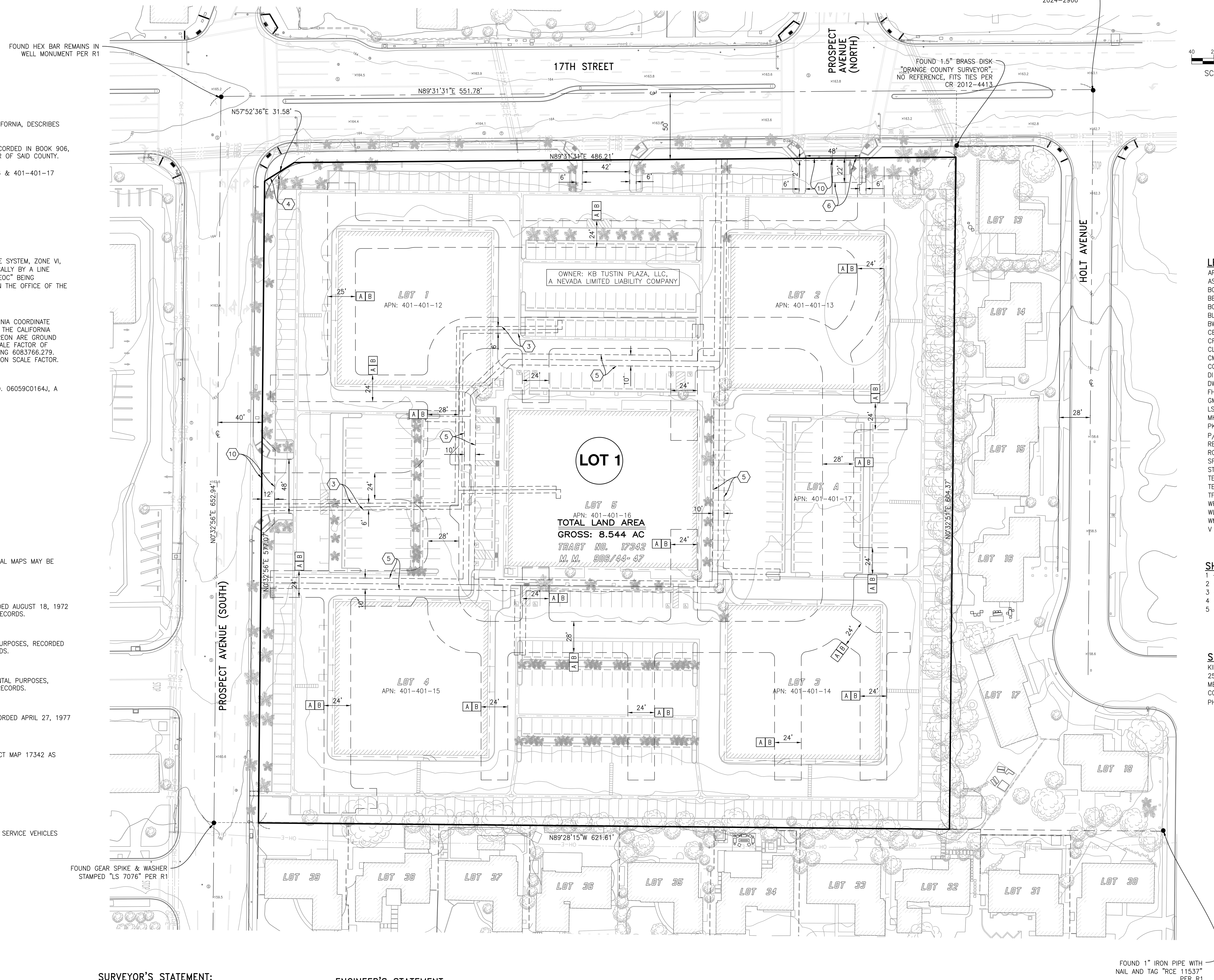
APPENDIX D: Reference Materials

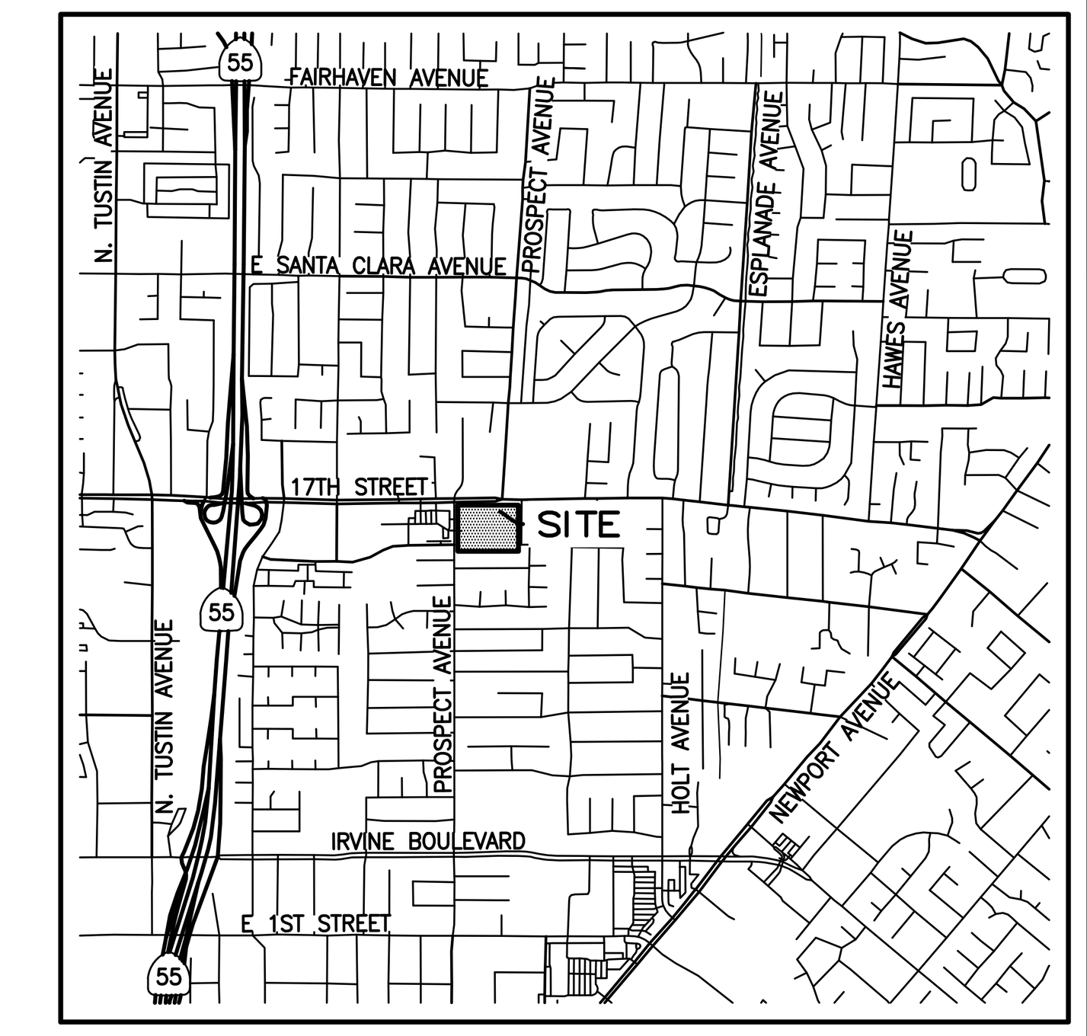
Vesting Tentative Tract Map No. 19390

VESTING TENTATIVE TRACT MAP NO. 19390

FOR CONDOMINIUM PURPOSES

IN THE CITY OF TUSTIN, COUNTY OF ORANGE, STATE OF CALIFORNIA





VICINITY MAP

SCALE: N.T.S.

LEGAL DESCRIPTION:

REAL PROPERTY IN THE CITY OF TUSTIN, COUNTY OF ORANGE, STATE OF CALIFORNIA, DESCRIBES AS FOLLOWS:

LOTS 1 TO 5 INCLUSIVE, AND LOT A OF TRACT NO. 17342, AS PER MAP RECORDED IN BOOK 906, PAGES 44 TO 47 INCLUSIVE OF MAPS IN THE OFFICE THE COUNTY RECORDER OF SAID COUNTY.

APN: 401-401-12, 401-401-13, 401-401-14, 401-401-15, 401-401-16 & 401-401-17

SITE ADDRESS:

PROSPECT & 17TH STREET TUSTIN, CA 92780

VESTED OWNER:

KB TUSTIN PLAZA, LLC, A NEVADA LIMITED LIABILITY COMPANY

BASIS OF BEARINGS:

THE BEARINGS FOR THIS SURVEY ARE BASED ON THE CALIFORNIA COORDINATE SYSTEM, ZONE VI, 1983 NAD 83, (2017.50 EPOCH OCS GPS ADJUSTMENT), AS DETERMINED LOCALLY BY A LINE BETWEEN CONTINUOUS GLOBAL POSITIONING STATIONS (CGPS) "SACY" AND "OEOC" BEING N80°43'39"E AS DERIVED FROM GEODETIC VALUES PUBLISHED AND ON FILE IN THE OFFICE OF THE ORANGE COUNTY SURVEYOR.

DATUM STATEMENT:

ALL COORDINATES SHOWN HEREON ARE GRID VALUES BASED ON THE CALIFORNIA COORDINATE SYSTEM OF 1983, CCS83, ZONE VI, (2017.50 EPOCH), IN ACCORDANCE WITH THE CALIFORNIA PUBLIC RESOURCES CODE SECTIONS 8801-8819. ALL DISTANCES SHOWN HEREON ARE GROUND VALUES IN U.S. SURVEY FEET UNLESS OTHERWISE NOTED. A COMBINATION SCALE FACTOR OF 0.99997926 WAS USED FOR THIS PROJECT AT NORTHING 2222949.165, EASTING 6083766.279. TO OBTAIN GRID DISTANCES, MULTIPLY GROUND DISTANCES BY THE COMBINATION SCALE FACTOR.

FLOOD NOTE:

THE SUBJECT PROPERTY FALLS WITHIN "ZONE X-SHADED" PER FEMA MAP NO. 06059C0164J, A PRINTED PANEL, EFFECTIVE 12/3/2009.

LAND USE SUMMARY:

TOTAL PROPOSED: 1 LOT

TOTAL PROPOSED DWELLING UNITS: 145 UNITS

UTILITY PURVEYORS & SERVICES:

WATER: CITY OF TUSTIN WATER SERVICES	(714) 573-3350
SEWER: EAST ORANGE COUNTY WATER DISTRICT	(714) 538-5815
ELECTRIC: SOUTHERN CALIFORNIA EDISON	(800) 655-4555
GAS: SOUTHERN CALIFORNIA GAS	(800) 427-2000
TELEPHONE: AT&T	(844) 229-8421
CABLE: TIME WARNER CABLE	(855) 707-7328
TRASH/REFUSE: CR&R WASTE AND RECYCLING	(800) 826-9677
SCHOOL DISTRICT: TUSTIN UNIFIED SCHOOL DISTRICT	(714) 730-7301

NOTE:

1) PURSUANT TO SUBDIVISION MAP ACT SECTION 66456.1(a), MULTIPLE FINAL MAPS MAY BE FILED ON THIS TENTATIVE MAP.

EXISTING EASEMENTS:

3. AN EASEMENT FOR PUBLIC UTILITY AND INCIDENTAL PURPOSES, RECORDED AUGUST 18, 1972 AS INSTRUMENT NO. 19942 IN BOOK 10282, PAGE 358 OF OFFICIAL RECORDS.

   IN FAVOR OF: SOUTHERN CALIFORNIA EDISON

4. AN EASEMENT FOR STREET, HIGHWAY AND DRAINAGE AND INCIDENTAL PURPOSES, RECORDED SEPTEMBER 27, 1972 AS BOOK 10345, PAGE 949 OF OFFICIAL RECORDS.

   IN FAVOR OF: THE CITY OF TUSTIN

5. AN EASEMENT FOR UNDERGROUND WATER SUPPLY SYSTEM AND INCIDENTAL PURPOSES, RECORDED APRIL 10, 1973 AS BOOK 10637, PAGE 652 OF OFFICIAL RECORDS.

   IN FAVOR OF: TUSTIN WATER WORKS

6. AN EASEMENT FOR TRAFFIC CONTROL AND INCIDENTAL PURPOSES, RECORDED APRIL 27, 1977 AS BOOK 12166, PAGE 998 OF OFFICIAL RECORDS.

   IN FAVOR OF: THE CITY OF TUSTIN

10. AN EASEMENT DEDICATED TO THE CITY OF TUSTIN SHOWN ON THE TRACT MAP 17342 AS REFERRED TO IN THE LEGAL DESCRIPTION.

   FOR: DRIVEWAY AND INCIDENTAL PURPOSES

PROPOSED EASEMENTS:

- A — EASEMENT(S) FOR INGRESS AND EGRESS FOR EMERGENCY AND PUBLIC SERVICE VEHICLES
- B — EASEMENT(S) FOR PUBLIC UTILITIES

LEGEND:

AP	ANGLE POINT
ASPH	ASPHALT PAVEMENT
BC	BUILDING CORNER
BEG	BEGIN
BO	BLOW-OFF VALVE
BLDG	BUILDING
BW	BLOCK WALL
CB	CATCH BASIN
CF	CURB FACE
CLF	CHAIN LINK FENCE
CMF	CORRUGATED METAL FENCE
CONC	CONCRETE PAVEMENT
DI	DRAIN INLET
DWY	DRIVEWAY
FH	FIRE HYDRANT
GM	GAS METER
LS	LANDSCAPING
MH	MANHOLE
PKWY	PARKWAY
P/L	PROPERTY LINE
RET	RETAINING
ROW	RIGHT-OF-WAY
SFH	SINGLE-FAMILY HOME
ST LT	STREET LIGHT
TE	TRASH ENCLOSURE
TEMP	TEMPORARY
TF	TRANSFORMER
WF	WOOD FENCE
WL	WALL
WM	WATER METER
V	VALVE

SYMBOLS:

BO	BLOW-OFF VALVE
DI	DRAIN INLET
FH	FIRE HYDRANT
	LIGHT STANDARD
	STORM DRAIN MANHOLE
	SANITARY SEWER MANHOLE
	SIGN POST
GM	GAS METER
WM	WATER METER
V	UTILITY VALVE
	UTILITY/POWER POLE
	BLOCK/RETAINING SCREEN WALL
	BLOCK/RETAINING LOW WALL
	PLANTER/DECORATIVE WALL
OH-E	OVERHEAD WIRE
	EDGE OF ASPHALT PAVEMENT
	WOOD/WROUGHT IRON FENCE
X	CHAIN LINK FENCE
	DIRECTION OF FLOW
93	MINOR CONTOUR (1' INTERVAL)
100	MAJOR CONTOUR (5' INTERVAL)
×91.5	SPOT ELEVATION

SHEET INDEX:

1 – TENTATIVE TRACT MAP
2 – PRELIMINARY SITE PLAN
3 – PRELIMINARY GRADING PLAN
4 – PRELIMINARY UTILITY PLAN
5 – PRELIMINARY SECTIONS

SUBDIVIDER:

KINGSBARN CAPITAL & DEVELOPMENT
2500 SAND HILL ROAD, SUITE 320
MENLO PARK, CA. 94025
CONTACT: JOHN STACK, VICE PRESIDENT OF DEVELOPMENT
PHONE: (650) 782-3300

ENGINEER:

C&V CONSULTING, INC.
9830 IRVINE CENTER DRIVE
IRVINE, CA 92618
(949)916-3800

SURVEYOR'S STATEMENT:

THE SURVEY ON WHICH THIS VESTING TENTATIVE MAP IS BASED WAS DONE BY ME, OR UNDER MY DIRECTION. FIELDWORK WAS COMPLETED ON 2025-01-24.

DANE P. MCDOUGALL, L.S. 9297

PROFESSIONAL LAND SURVEYOR — DANE P. MCDOUGALL — L.S. 9297 — STATE OF CALIFORNIA

ENGINEER'S STATEMENT:

THIS VESTING TENTATIVE MAP WAS PREPARED BY ME, OR UNDER MY DIRECTION ON FEBRUARY 20, 2025.

DANE P. MCDOUGALL, R.C.E. 80705

REGISTERED PROFESSIONAL ENGINEER — DANE P. MCDOUGALL — C 80705 — CIVIL — STATE OF CALIFORNIA

PREPARED BY:	PREPARED FOR:		
C&V CONSULTING, INC. CIVIL ENGINEERING LAND PLANNING & SURVEYING — 9830 IRVINE CENTER DRIVE, IRVINE, CALIFORNIA 92618 — (949) 916-3800 — INFO@CVC-INC.NET — WWW.CVC-INC.NET	KINGSBARN CAPITAL & DEVELOPMENT — KINGSBARN CAPITAL & DEVELOPMENT, 2500 SAND HILL ROAD, SUITE 320, MENLO PARK, CA, 94025 — (650) 782-3300	**CITY OF TUSTIN** DEPARTMENT OF COMMUNITY DEVELOPMENT — **VESTING TENTATIVE TRACT MAP NO. 19390** — PROSPECT AVENUE & 17TH STREET, TUSTIN, CALIFORNIA 92780	PROJECT NO. KBAR-001 — SHEET 1 OF 5

PLAN SET: PS01 DATE: 2/20/2025
P:\K\KBAR-001\DWG\SHEETS\TTM\TTM-P0-01_TS.DWG BY: JOY HENDRICKS

LEGEND:

AP	ANGLE POINT
ASPH	ASPHALT PAVEMENT
BC	BUILDING CORNER
BEG	BEGIN
BO	BLOW-OFF VALVE
BLDG	BUILDING
BW	BLOCK WALL
CB	CATCH BASIN
CF	CURB FACE
CLF	CHAIN LINK FENCE
CMF	CORRUGATED METAL FENCE
CONC	CONCRETE PAVEMENT
DI	DRAIN INLET
DWY	DRIVEWAY
FH	FIRE HYDRANT
GM	GAS METER
LS	LANDSCAPING
MH	MANHOLE
PKWY	PARKWAY
P/L	PROPERTY LINE
RET	RETAINING
ROW	RIGHT-OF-WAY
SFH	SINGLE-FAMILY HOME
ST LT	STREET LIGHT
TE	TRASH ENCLOSURE
TEMP	TEMPORARY
TF	TRANSFORMER
WF	WOOD FENCE
WL	WALL
WM	WATER METER
V	VALVE

SYMBOLS:

BO	BLOW-OFF VALVE
DI	DRAIN INLET
FH	FIRE HYDRANT
	LIGHT STANDARD
	STORM DRAIN MANHOLE
	SANITARY SEWER MANHOLE
	SIGN POST
GM	GAS METER
WM	WATER METER
V	UTILITY VALVE
	UTILITY/POWER POLE
	BLOCK/RETAINING SCREEN WALL
	BLOCK/RETAINING LOW WALL
	PLANTER/DECORATIVE WALL
	OVERHEAD WIRE
	EDGE OF ASPHALT PAVEMENT
	WOOD/WROUGHT IRON FENCE
	CHAIN LINK FENCE
	DIRECTION OF FLOW
93	MINOR CONTOUR (1' INTERVAL)
100	MAJOR CONTOUR (5' INTERVAL)
×91.5	SPOT ELEVATION
	ADA UNIT LOCATION
	LINE OF SIGHT

1" = 30'

0 15 30 60

PREPARED BY:

REGISTERED PROFESSIONAL ENGINEER DANE P. MCDOUGALL C 80705 CIVIL STATE OF CALIFORNIA

C&V CONSULTING, INC.
CIVIL ENGINEERING
LAND PLANNING & SURVEYING

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PREPARED FOR:

KINGSBARN® CAPITAL & DEVELOPMENT
KINGSBARN CAPITAL & DEVELOPMENT
2500 SAND HILL ROAD, SUITE 320, MENLO PARK, CA, 94025
(650) 782-3300

CITY OF TUSTIN
DEPARTMENT OF COMMUNITY DEVELOPMENT

VESTING TENTATIVE TRACT MAP NO. 19390

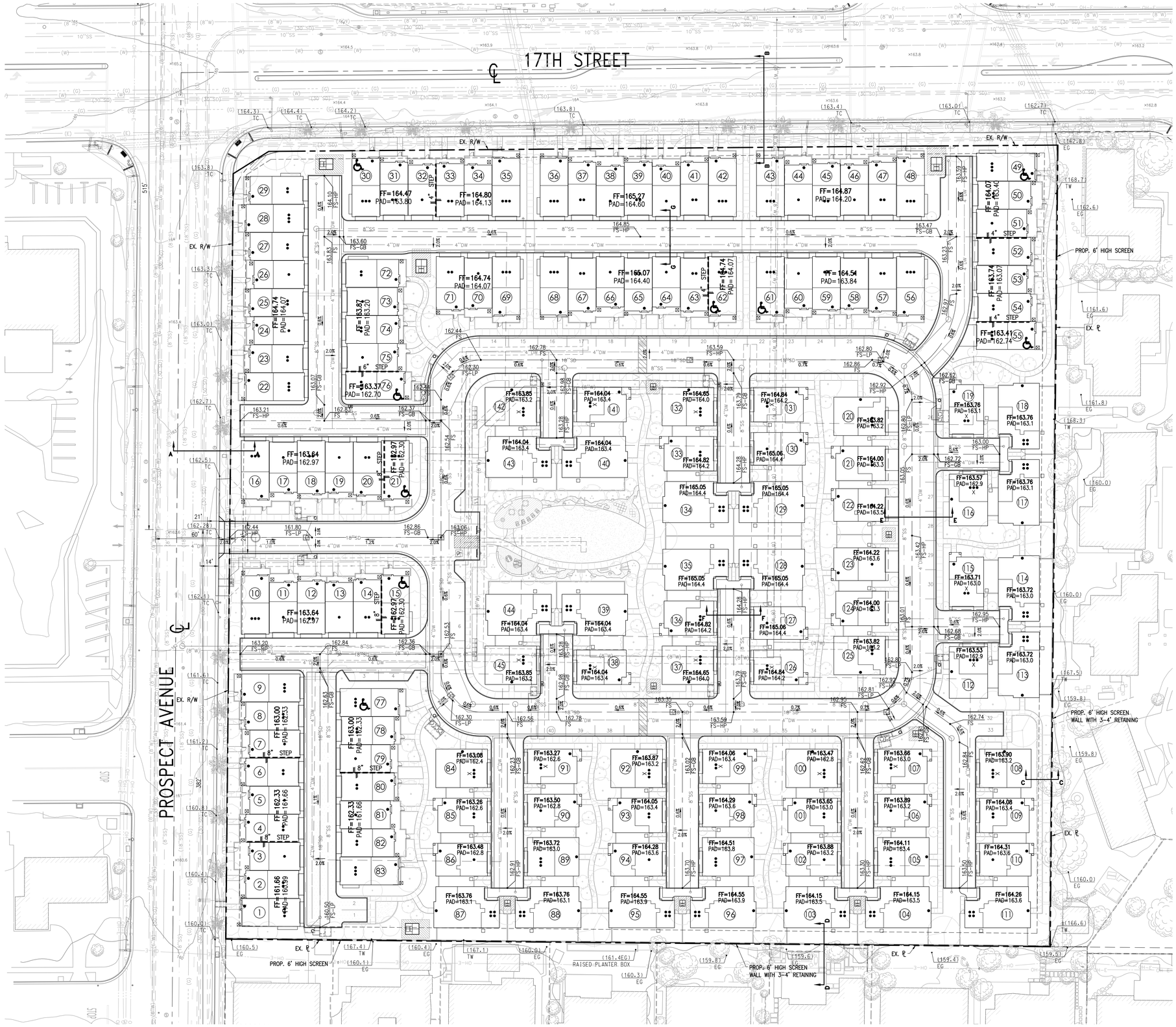
PRELIMINARY SITE PLAN

PROSPECT AVENUE & 17TH STREET
TUSTIN, CALIFORNIA 92780

PROJECT NO. KBAR-001

SHEET 2 OF 5

PLAN SET: PS01
DATE: 2/20/2025



LEGEND:

AP	ANGLE POINT
ASPH	ASPHALT PAVEMENT
BC	BUILDING CORNER
BEG	BEGIN
BO	BLOW-OFF VALVE
BLDG	BUILDING
BW	BLOCK WALL
CB	CATCH BASIN
CF	CURB FACE
CLF	CHAIN LINK FENCE
CMF	CORRUGATED METAL FENCE
CONC	CONCRETE PAVEMENT
DI	DRAIN INLET
DWY	DRIVEWAY
FH	FIRE HYDRANT
GM	GAS METER
LS	LANDSCAPING
MH	MANHOLE
PKWY	PARKWAY
P/L	PROPERTY LINE
RET	RETAINING
ROW	RIGHT-OF-WAY
SFH	SINGLE-FAMILY HOME
ST LT	STREET LIGHT
TE	TRASH ENCLOSURE
TEMP	TEMPORARY
TF	TRANSFORMER
WF	WOOD FENCE
WL	WALL
WM	WATER METER
V	VALVE

SYMBOLS:

BO	BLOW-OFF VALVE
DI	DRAIN INLET
FH	FIRE HYDRANT
	LIGHT STANDARD
	STORM DRAIN MANHOLE
	SANITARY SEWER MANHOLE
	SIGN POST
GM	GAS METER
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V	UTILITY VALVE
	UTILITY/POWER POLE
	BLOCK/RETAINING SCREEN WALL
	BLOCK/RETAINING LOW WALL
	PLANTER/DECORATIVE WALL
OH-E	OVERHEAD WIRE
	EDGE OF ASPHALT PAVEMENT
	WOOD/WROUGHT IRON FENCE
X	CHAIN LINK FENCE
	DIRECTION OF FLOW
93	MINOR CONTOUR (1' INTERVAL)
100	MAJOR CONTOUR (5' INTERVAL)
×91.5	SPOT ELEVATION

1" = 30'

0 15 30 60

PREPARED BY:

REGISTERED PROFESSIONAL ENGINEER DANIEL F. MCDONALD C 80705 CIVIL STATE OF CALIFORNIA

C&V CONSULTING, INC. CIVIL ENGINEERING LAND PLANNING & SURVEYING

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CITY OF TUSTIN
DEPARTMENT OF COMMUNITY DEVELOPMENT

VESTING TENTATIVE TRACT MAP NO. 19390

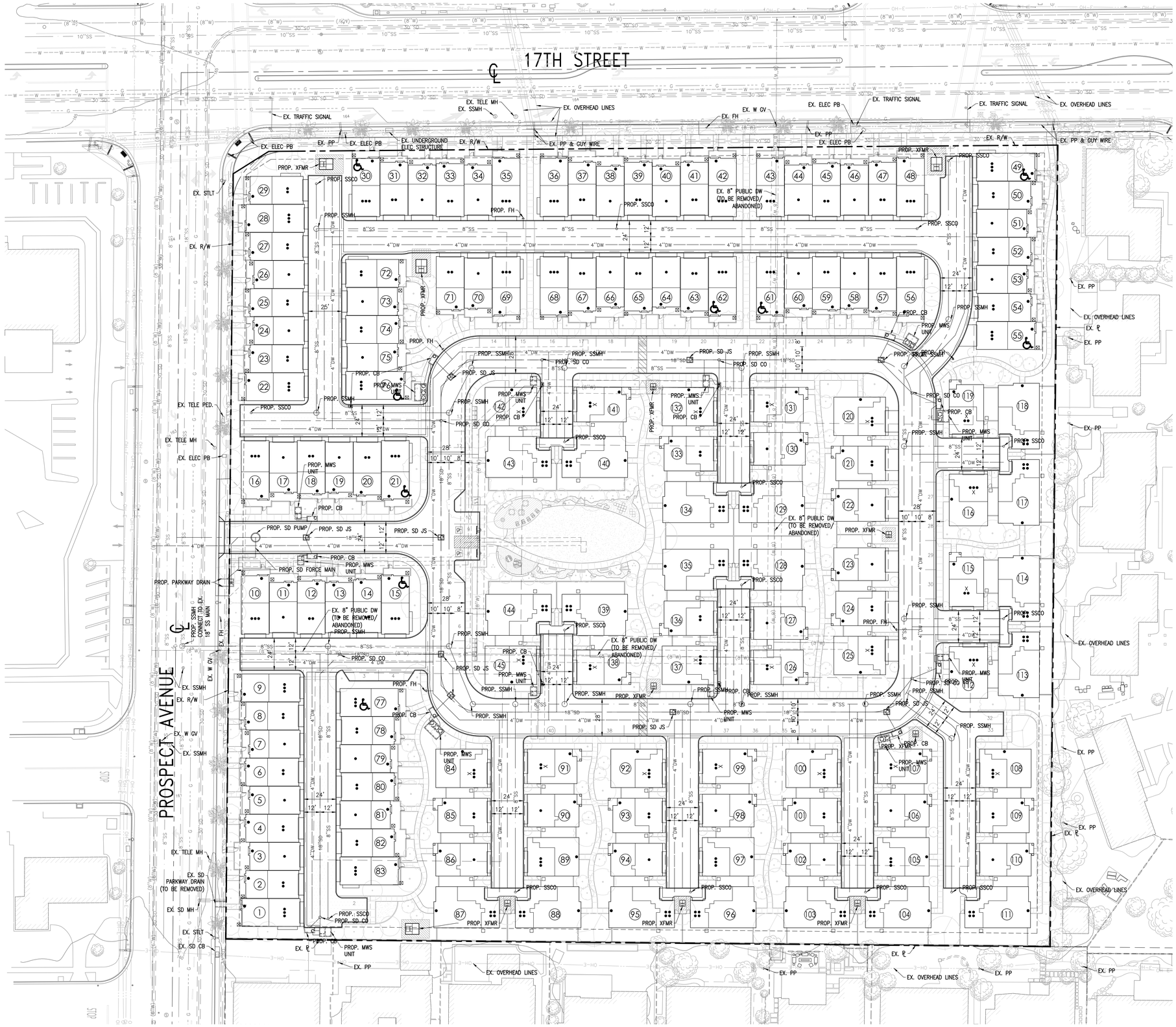
PRELIMINARY GRADING PLAN

PROSPECT AVENUE & 17TH STREET
TUSTIN, CALIFORNIA 92780

PROJECT NO. KBAR-001

SHEET 3 OF 5

DATE: 12/02/2025



LEGEND:

AP	ANGLE POINT
ASPH	ASPHALT PAVEMENT
BC	BUILDING CORNER
BEG	BEGIN
BO	BLOW-OFF VALVE
BLDG	BUILDING
BW	BLOCK WALL
CB	CATCH BASIN
CF	CURB FACE
CLF	CHAIN LINK FENCE
CMF	CORRUGATED METAL FENCE
CONC	CONCRETE PAVEMENT
DI	DRAIN INLET
DWY	DRIVEWAY
FH	FIRE HYDRANT
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MH	MANHOLE
PKWY	PARKWAY
P/L	PROPERTY LINE
RET	RETAINING
ROW	RIGHT-OF-WAY
SFH	SINGLE-FAMILY HOME
ST LT	STREET LIGHT
TE	TRASH ENCLOSURE
TEMP	TEMPORARY
TF	TRANSFORMER
WF	WOOD FENCE
WL	WALL
WM	WATER METER
V	VALVE

SYMBOLS:

- BO BLOW-OFF VALVE
- DI DRAIN INLET
- FH FIRE HYDRANT
- LIGHT STANDARD
- STORM DRAIN MANHOLE
- SANITARY SEWER MANHOLE
- SIGN POST
- GM GAS METER
- WM WATER METER
- V UTILITY VALVE
- UTILITY/POWER POLE
- BLOCK/RETAINING SCREEN WALL
- BLOCK/RETAINING LOW WALL
- PLANTER/DECORATIVE WALL
- OH-E OVERHEAD WIRE
- EDGE OF ASPHALT PAVEMENT
- WOOD/WROUGHT IRON FENCE
- X CHAIN LINK FENCE
- DIRECTION OF FLOW
- 93 MINOR CONTOUR (1' INTERVAL)
- 100 MAJOR CONTOUR (5' INTERVAL)
- ×91.5 SPOT ELEVATION

1" = 30'

0 15 30 60

PREPARED BY:

REGISTERED PROFESSIONAL ENGINEER DANIEL P. MCDOUGALL C 80705 CIVIL STATE OF CALIFORNIA

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CITY OF TUSTIN
DEPARTMENT OF COMMUNITY DEVELOPMENT

VESTING TENTATIVE TRACT MAP NO. 19390

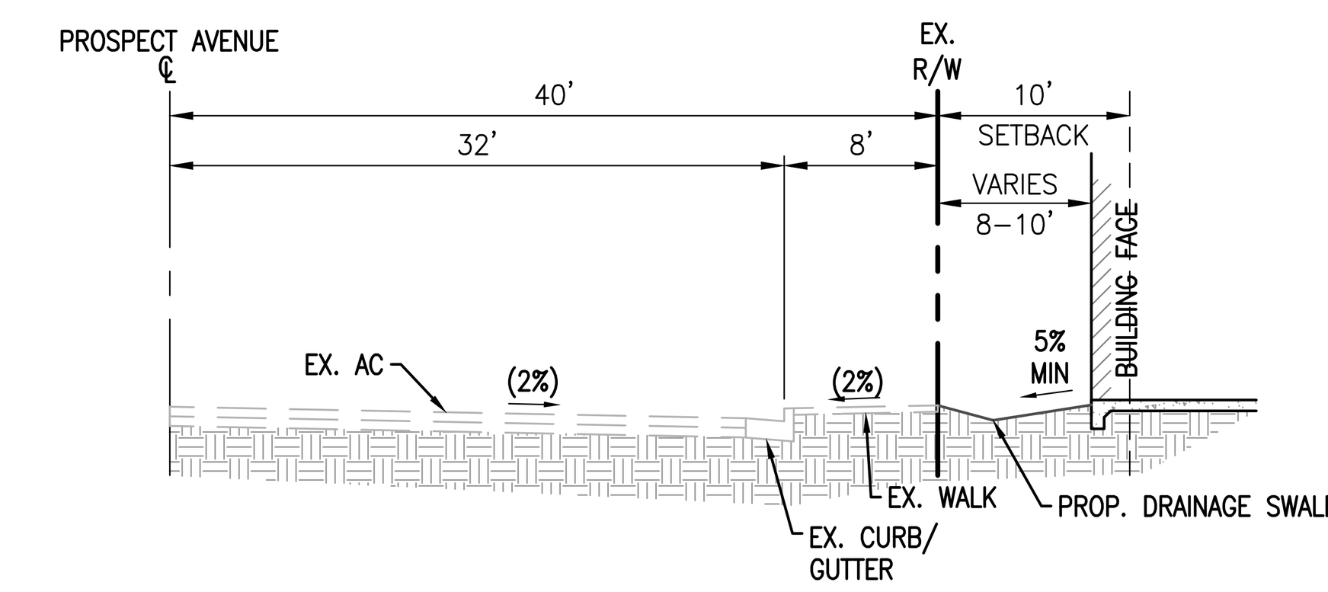
PRELIMINARY UTILITY PLAN

PROSPECT AVENUE & 17TH STREET
TUSTIN, CALIFORNIA 92780

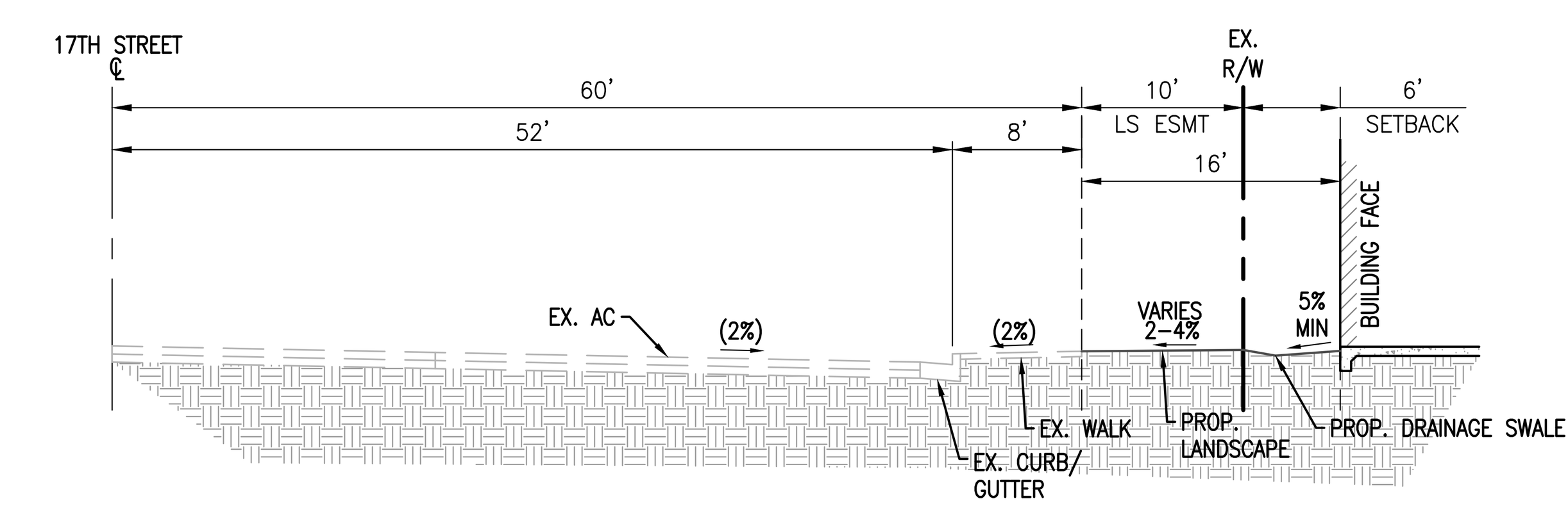
PROJECT NO. KBAR-001

SHEET 4 OF 5

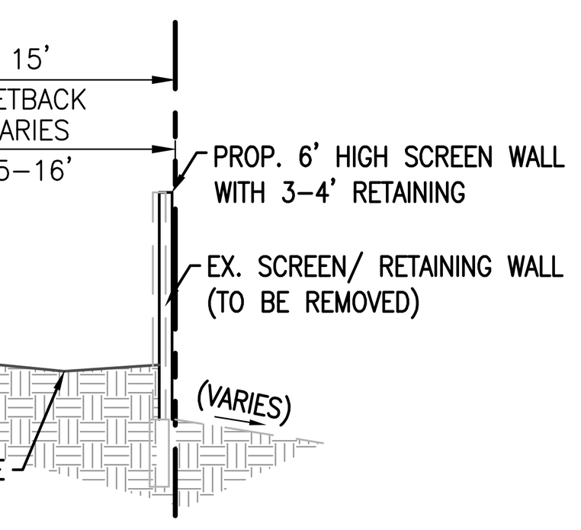
DATE: 12/02/2025



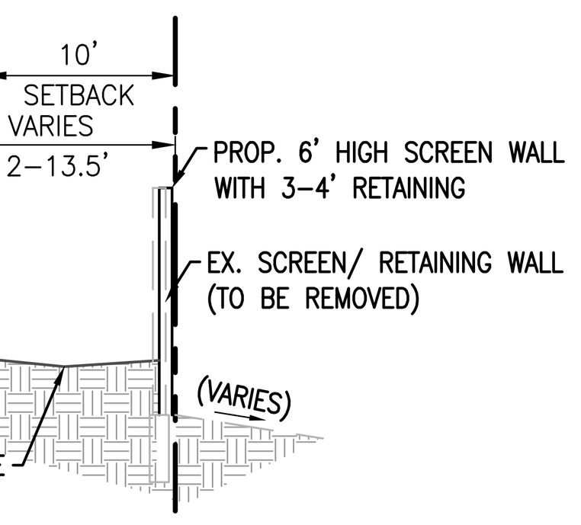
SECTION A – PROSPECT AVENUE
1"=10' HOR



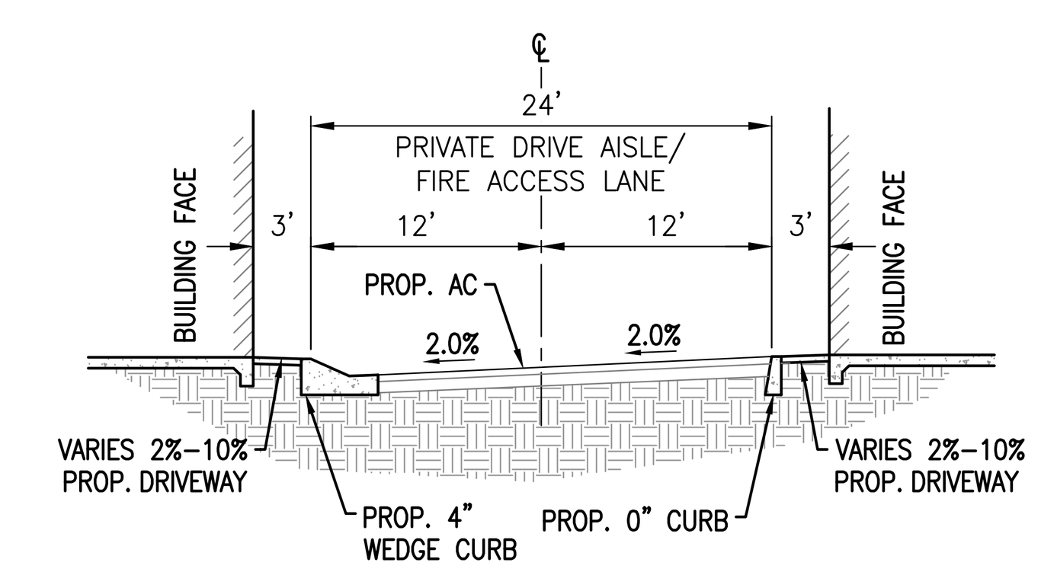
SECTION B – 17TH STREET
1"=10' HOR



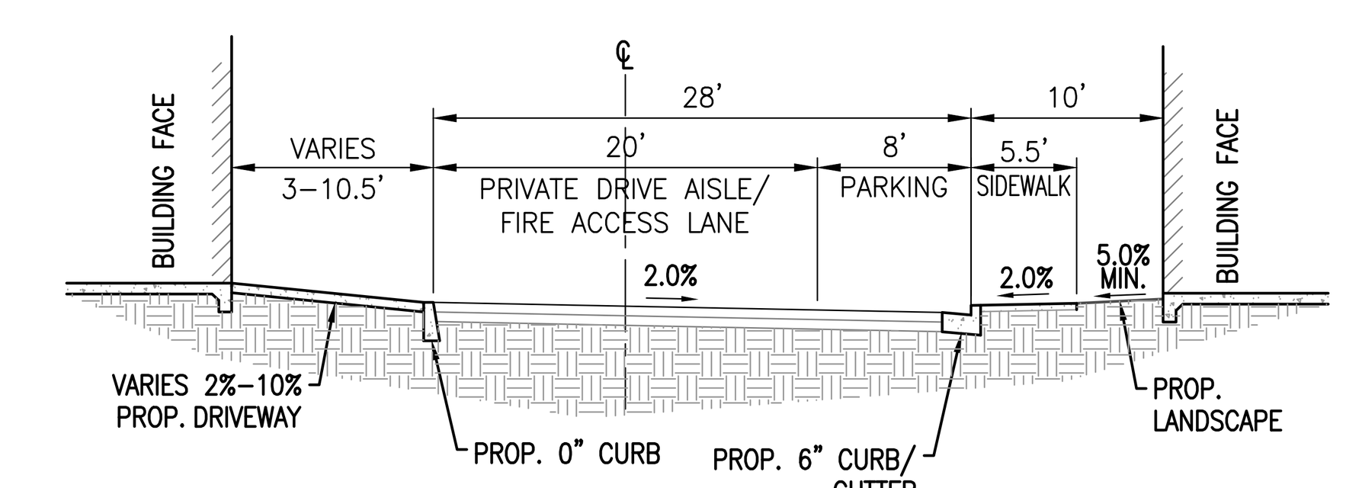
SECTION C – EAST PL
1"=10' HOR



SECTION D – SOUTH PL
1"=10' HOR



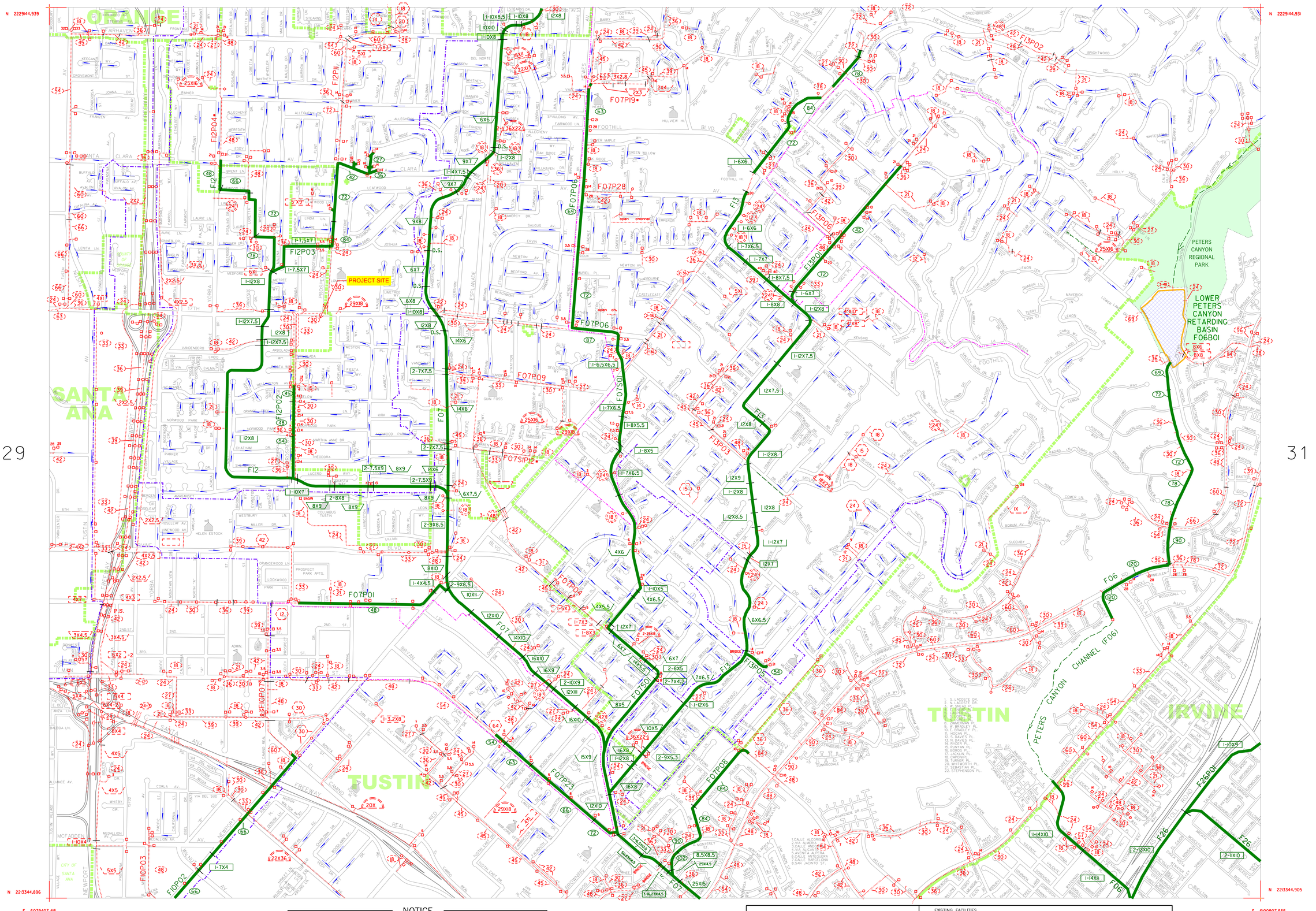
TYPICAL STREET SECTION
SECTION E
1"=10' HOR



TYPICAL STREET SECTION
SECTION F
1"=10' HOR

PREPARED BY:	PREPARED FOR:		PROJECT NO. KBAR-001
REGISTERED PROFESSIONAL ENGINEER, DANE P. McDOUGALL, C 80705, CIVIL, STATE OF CALIFORNIA C&V CONSULTING, INC. CIVIL ENGINEERING LAND PLANNING & SURVEYING 9830 IRVINE CENTER DRIVE IRVINE, CALIFORNIA 92618 (949) 916-3800 INFO@CVC-INC.NET WWW.CVC-INC.NET	KINGSBARN® CAPITAL & DEVELOPMENT KINGSBARN CAPITAL & DEVELOPMENT 2500 SAND HILL ROAD, SUITE 320, MENLO PARK, CA, 94025 (650) 782-3300	**CITY OF TUSTIN** DEPARTMENT OF COMMUNITY DEVELOPMENT **VESTING TENTATIVE TRACT MAP NO. 19390** **PRELIMINARY SECTIONS** PROSPECT AVENUE & 17TH STREET TUSTIN, CALIFORNIA 92780	SHEET 5 OF 5

Orange County Flood Control District Maps



N

0 200 400 600 800
FEET

NOTICE

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Additional information may be obtained from public plans and recorded deeds. Facility designations included with this information are for convenience only and are not controlling or intended to imply ownership by the County or the Orange County Flood Control District (OCFCD). The information is being provided as a courtesy and neither the County of Orange nor OCFCD assume any liabilities for inaccuracy of the information.

To notify the Resources & Development Management Department (RDMD) of additions or corrections, please contact Sal Gutierrez at (714) 834-5396 or by email at sal.gutierrez@rdmd.ocgov.com

ORANGE COUNTY FLOOD CONTROL DISTRICT

BASE MAP OF DRAINAGE FACILITIES IN ORANGE COUNTY

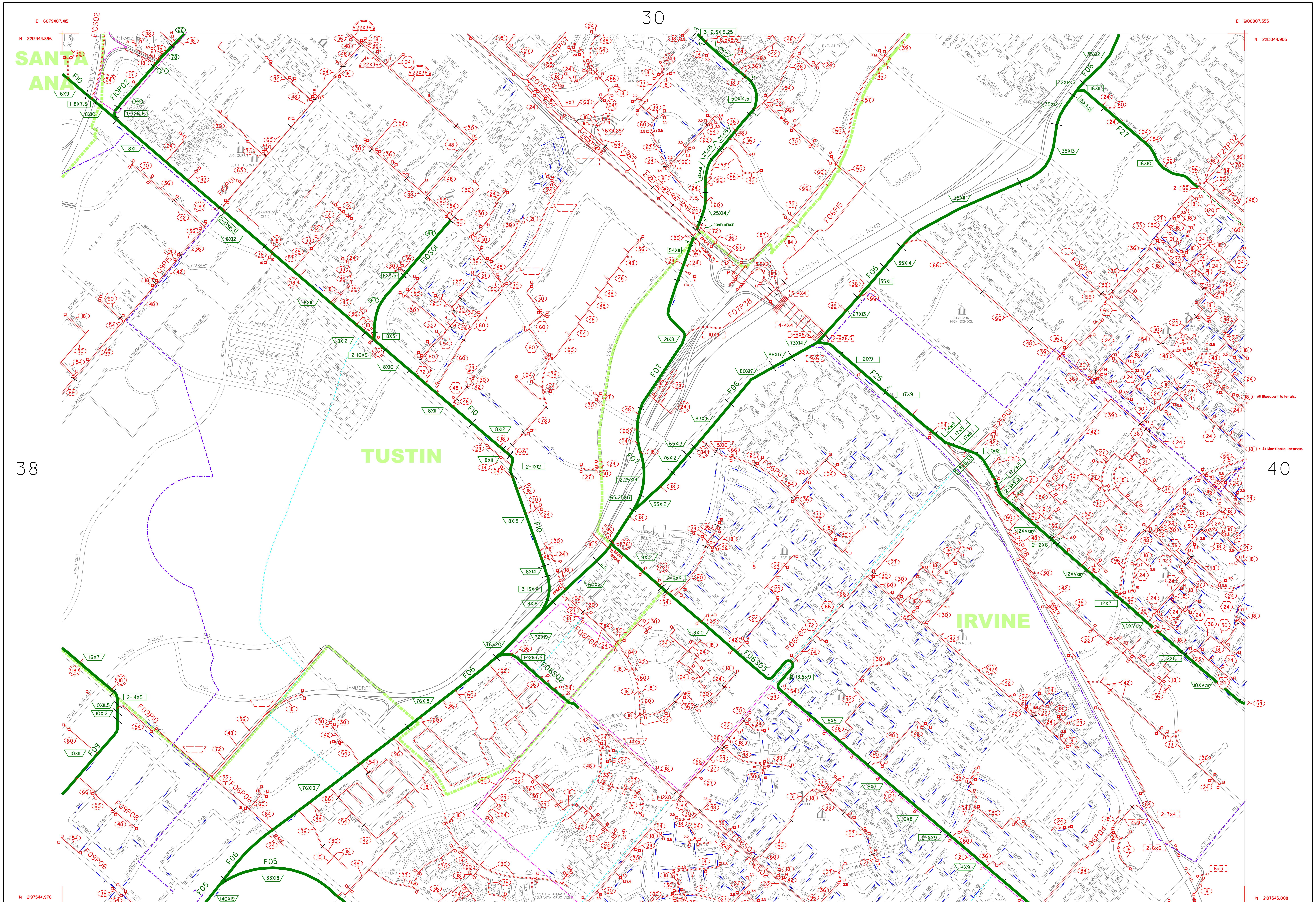
REVISION	DATE	SHEET NO.	DWG. NO.
S. GUTIERREZ	APR. 14, 2008	30	MAPS-113-3

- Channel Drainage Area Boundary
- Major Sub-Area Drainage Boundary
- Minor Sub-Area Drainage Boundary
- Existing O.C.F.C.D. Facility
- Existing Local Facility
- Existing Retarding Basin or Reservoir
- Natural Watercourse
- City Limits
- G G Greenbelt
- P.S. P.S. Pump Station
- Catch Basin (length in feet)
- Drop Inlet or Other Entry
- OCFCD Basins or Reservoirs

Ownership (If other than City or County): Private = P State = S Federal = F

EXISTING FACILITIES

O.C.F.C.D.	LOCAL	
		Earth Trapezoidal Channel (base width by height in feet)
		Reinforced Concrete Trapezoidal Channel (base width by height in feet)
		Reinforced Concrete Rectangular Channel (base width by height in feet)
		Reinforced Concrete Box (RCB) (number of barrels-span by height in feet)
		Reinforced Concrete Pipe (RCP) (diameter in inches)
		Metal Sheet Channel (MSC) (Base width by pile height in feet./Sheet pile total length)
		Corrugated Metal Pipe (CMP) (diameter in inches)
		Concrete Pipe (diameter in inches)
		Concrete Oval Pipe (width by height in inches)
		Steel Pipe (diameter in inches)
		Reinforced Concrete Arch (base span by height in inches)
		Corrugated Metal Arch (base span by height in inches)



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ORANGE COUNTY FLOOD CONTROL DISTRICT

BASE MAP OF DRAINAGE FACILITIES IN ORANGE COUNTY

REVISION	DATE	SHEET NO.	DWG. NO.
S. GUTIERREZ	*APR. 28, 2008*	39	MAPS–113–3

Channel Drainage Area Boundary
Major Sub–Area Drainage Boundary
Minor Sub–Area Drainage Boundary
Existing O.C.F.C.D. Facility
Existing Local Facility
Existing Retarding Basin or Reservoir
Natural Watercourse
City Limits
G G Greenbelt
P.S. P.S. Pump Station
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Corrugated Metal Pipe (CMP) (diameter in inches)
Concrete Pipe (diameter in inches)
Concrete Oval Pipe (width by height in inches)
Steel Pipe (diameter in inches)
Reinforced Concrete Arch (base span by height in inches)
Corrugated Metal Arch (base span by height in inches)

39

E 6079407.227
N 2197544.976
E 6100907.334
N 2197545.008

47

48

45

Scale: 1"=600'

ORANGE COUNTY FLOOD CONTROL DISTRICT			
BASEMAP OF DRAINAGE FACILITIES IN ORANGE COUNTY			
REVISION	DATE	SHEET NO.	DWG. NO.
AJU	JAN.12/2000	48	MAPS-113-3

Channel Drainage Area Boundary
Major Sub-Area Drainage Boundary
Minor Sub-Area Drainage Boundary
Existing O.C.F.C.D. Facility
Existing Local Facility
Existing Retarding Basin or Reservoir
Natural Watercourse
City Limits
Greenbelt
G P.S. Pump Station
Catch Basin (length in feet)
Drop Inlet or Other Entry
Ownership (if other than city or county)
P Private
S State
F Federal

Existing O.C.F.C.D.	Existing LOCAL
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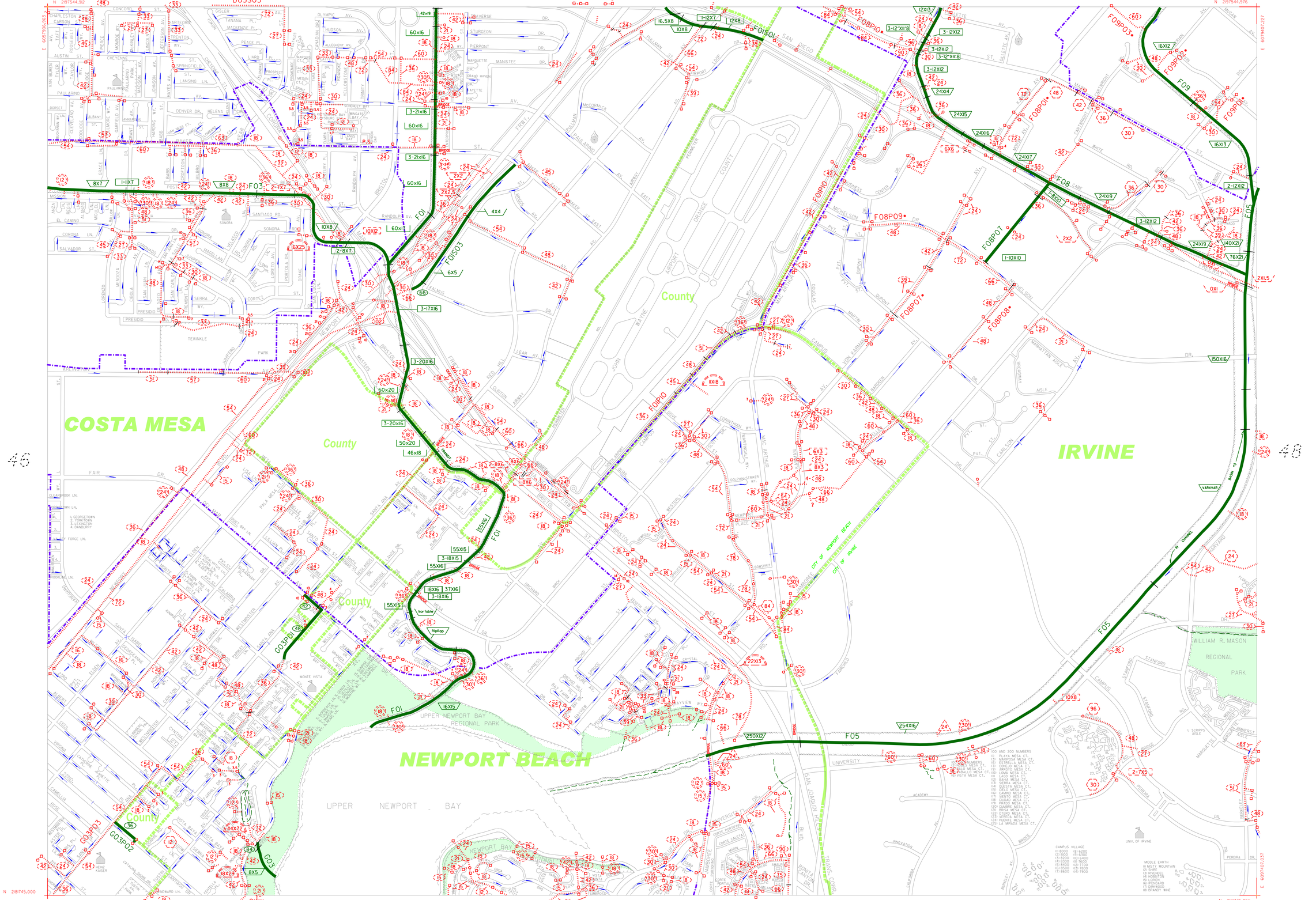
	Steel Pipe (diameter in inches)
	Reinforced Concrete Arch (base span by height in inches)
	Corrugated Metal Arch (base span by height in inches)



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To notify OC Public Works Flood Control Section of additions or corrections, please contact Sal Gutierrez at (714) 647-3992 or by email at sal.gutierrez@ocpw.ocgov.com

55

ORANGE COUNTY FLOOD CONTROL DISTRICT

BASE MAP OF DRAINAGE FACILITIES IN ORANGE COUNTY

REVISION	DATE	SHEET NO.	DWG. NO.
S. GUTIERREZ	JAN. 26 2012	47	MAPS-113-3

- Channel Drainage Area Boundary
- Major Sub-Area Drainage Boundary
- Minor Sub-Area Drainage Boundary
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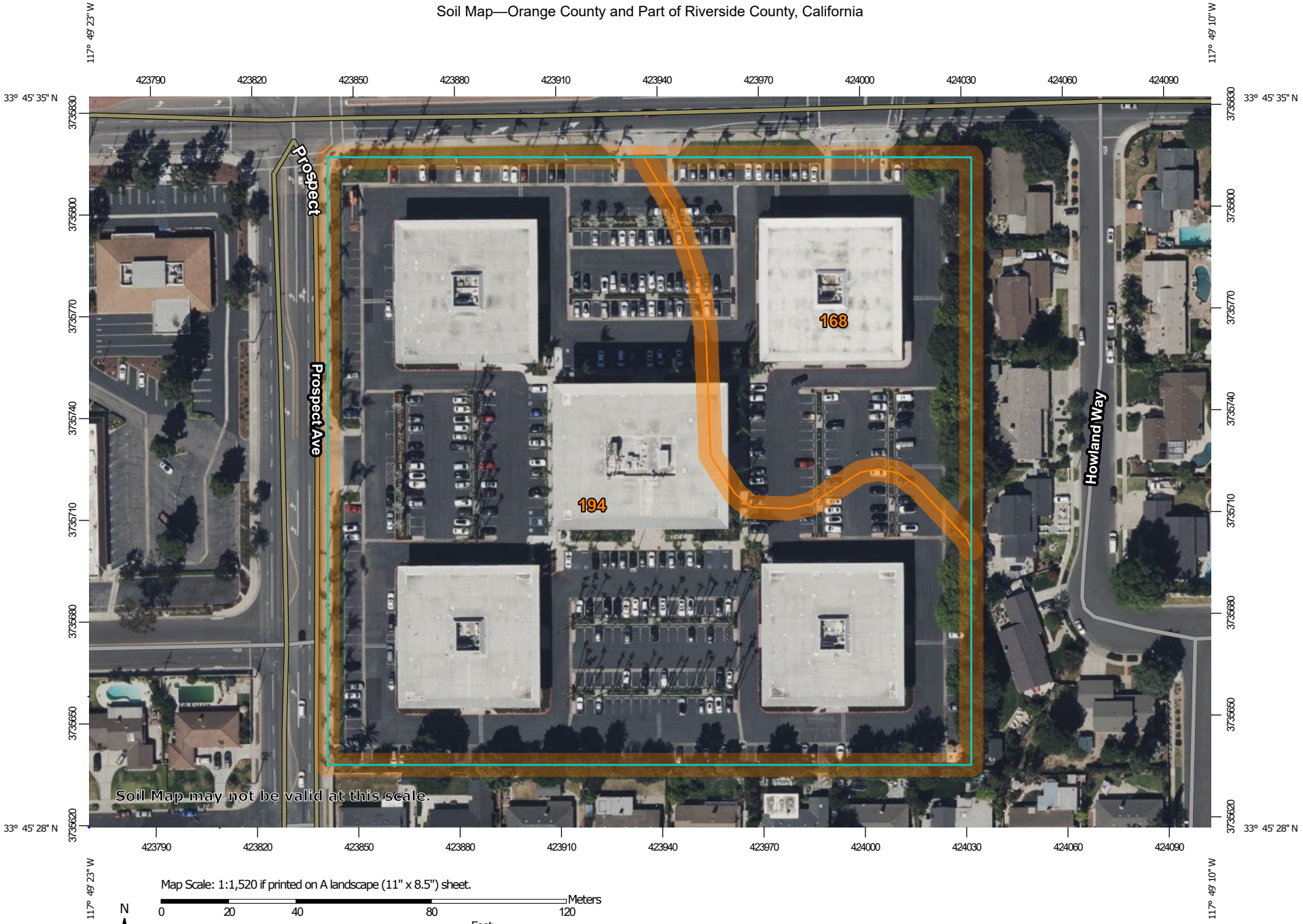
		Concrete Pipe (diameter in inches)
		Concrete Oval Pipe (width by height in inches)
		Steel Pipe (diameter in inches)
		Reinforced Concrete Arch (base span by height in inches)
		Corrugated Metal Arch (base span by height in inches)

N

0 200 400 600 800

FEET

NRCS Web Soil Survey Map



Map Scale: 1:1,520 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 20 40 80 120

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

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: Orange County and Part of Riverside County, California
Survey Area Data: Version 18, Aug 30, 2024

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

Date(s) aerial images were photographed: Mar 14, 2022—Mar 17, 2022

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
168	Modjeska gravelly loam, 0 to 2 percent slopes	2.0	23.8%
194	San Emigdio fine sandy loam, 0 to 2 percent slopes	6.5	76.2%
Totals for Area of Interest		**8.5**	**100.0%**

Orange County and Part of Riverside County, California

194—San Emigdio fine sandy loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2y8t6
Elevation: 30 to 1,190 feet
Mean annual precipitation: 11 to 14 inches
Mean annual air temperature: 64 to 65 degrees F
Frost-free period: 360 to 365 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

San emigdio and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of San Emigdio

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock

Typical profile

A - 0 to 7 inches: fine sandy loam
C - 7 to 61 inches: stratified gravelly loamy coarse sand to fine sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.4 inches)

Interpretive groups

Land capability classification (irrigated): 1

Land capability classification (nonirrigated): 3c
Hydrologic Soil Group: A
Ecological site: R019XD029CA - LOAMY
Hydric soil rating: No

Minor Components

Palmview
Percent of map unit: 4 percent
Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Metz
Percent of map unit: 4 percent
Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Hueneme
Percent of map unit: 4 percent
Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Mocho
Percent of map unit: 2 percent
Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Soboba
Percent of map unit: 1 percent
Landform: Alluvial fans
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Convex

Hydric soil rating: No

Data Source Information

Soil Survey Area: Orange County and Part of Riverside County, California
Survey Area Data: Version 18, Aug 30, 2024

Orange County and Part of Riverside County, California

168—Modjeska gravelly loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: hcnf
Elevation: 200 to 1,500 feet
Mean annual precipitation: 12 to 20 inches
Mean annual air temperature: 59 to 63 degrees F
Frost-free period: 280 to 330 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Modjeska and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Modjeska

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed

Typical profile

H1 - 0 to 14 inches: gravelly loam
H2 - 14 to 63 inches: very cobbly loam
H3 - 63 to 71 inches: very gravelly loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: A
Ecological site: R019XD029CA - LOAMY
Hydric soil rating: No

Minor Components

Myford, sandy loam, thick surface
Percent of map unit: 5 percent
Hydric soil rating: No

Myford, sandy loam
Percent of map unit: 5 percent
Hydric soil rating: No

Yorba, gravelly sandy loam
Percent of map unit: 5 percent
Hydric soil rating: No

Data Source Information

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