PRELIMINARY HYDROLOGY REPORT
CITY OF ALISO VIEJO
VESTING TENTATIVE TRACT NO. 19477

Project Address:
1, 2, 3, 4, & 5 Polaris Way
Aliso Viejo, Ca

Prepared For:
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Prepared by:
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February 2026
Revised: June 2026

Preliminary Hydrology Study
For
Tract No. 19477

ACKOWLEDGEMENT AND SIGNATURE

This Hydrology and Hydraulics study was prepared by C&V Consulting, Inc. under the supervision of Dane McDougall, P.E.

_____ _____

Dane McDougall, PE 80705 Date
C&V Consulting, Inc.

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I. Purpose

The purpose of this study is to provide quantitative information to verify the design of the storm drain infrastructure and hydrologic methodology of the project site. The study will demonstrate satisfaction of detention or other peak flow mitigation requirements for the 2-, 10-, 25-, and 100- year storm events. The values and statements within this study confirm the subject site is designed and planned in accordance with the City of Aliso Viejo's design guidelines and Orange County Hydrology Manual and Orange County Flood Control District (OCFCD) Design Manual.

II. Site Description

The proposed development is located at 1, 2, 3, 4, and 5 Polaris Way in the City of Aliso Viejo, California (APNs 623-481-49, 623-481-50, 623-481-51, 623-481-52, 623-481-53). The proposed development consists of five (5) existing buildings over approximately 22.5 acres as measured to the existing right- of-way. The site is bounded by Aliso Viejo Parkway to the north, California Route 73 to the west, and a condominium complex to the south and east.

Per the City of Aliso Viejo GIS Zoning Map, the site is identified as being within the Professional Office (PO) zoning district and land use designation, with a mixed use/residential overlay. According to the city of Aliso Viejo zoning code "The Professional Office zoning district is established to provide for the development and maintenance of an optimal environment for moderate intensity professional and administrative office uses and related uses on sites with large landscaped open spaces and off-street parking facilities."

The proposed site does not fit within the current zoning classification, and as such the proposed zoning for the development is High Density Residential (RH) which allows a residential density of between 18-30 du/ac.

The site is currently developed with five commercial buildings, associated surface parking areas, internal drive aisles, and landscaped areas. Primary vehicular access is provided via two existing driveways along Aliso Viejo Parkway. The site is approximately 90 percent impervious. A 2:1 slope exists along the eastern and southern property boundary.

The proposed project consists of one hundred one (101) residential buildings totaling four hundred five (405) townhome units. Site improvements will include internal drive aisles, surface parking, landscaped areas, common open space and recreational amenities, and one primary driveway entrance/exit from Aliso Viejo Parkway.

According to the Federal Emergency Management Agency (FEMA), FIRM rate map Number 06059C0428J, revised December 3, 2009, the site is located within the flood zone as follows: "Zone X – Area of minimal flood Hazard."

Based on available soil mapping published by the Natural Resources Conservation Service (NRCS), the project site is classified as Hydrologic Soil Group (HSG) D. Soil Group D is characterized by very low infiltration rates, high runoff potential, and slow saturated hydraulic conductivity when thoroughly wetted. These soils typically consist of clayey materials, soils with a high shrink–swell potential, soils with a shallow seasonal high groundwater table, or soils underlain by a restrictive layer that limits downward percolation. From a hydrologic modeling perspective, Soil Group D results in higher runoff volumes and peak discharge rates relative to Soil Groups A, B, or C and is therefore associated with higher Curve Numbers under the NRCS methodology.

III. Existing Conditions

The existing site is fully developed with five (5) commercial buildings surrounded by parking areas and landscape planters. A drive aisle encircles the buildings and provides onsite circulation. The

site slopes continuously from the northwest to the southeast, with elevations ranging from approximately 453 feet above mean sea level (MSL) at the northwest corner to approximately 425 feet MSL at the southeast corner, representing an overall elevation differential of approximately 28 feet across the site.

The site is situated below Aliso Viejo Parkway along the majority of the northern property line. The maximum grade differential between the site and the roadway is approximately 13 feet near the central driveway entrance. A 2:1 slope is located along the eastern property line, descending approximately 25 feet. Along the southern property line, a similar 2:1 slope descends approximately 33 feet to the south.

Surface runoff flows southeasterly overland toward the southeast corner of the site. Runoff is collected by curb and gutter along the eastern property line and enters an existing catch basin. The catch basin connects to an existing 30-inch storm drain that conveys runoff to Windsong. In Windsong, flow enters a 36-inch storm drain that conveys runoff toward Aliso Creek Road, where the pipe increases to 42 inches in diameter. The system ultimately discharges to the Aliso Creek Channel in Aliso Viejo Community Park. Flows are conveyed downstream within the Aliso Creek Channel to the Pacific Ocean at the Aliso Creek outlet in the City of Laguna Beach. The site is located within the Aliso Creek Watershed and is subject to hydromodification requirements which are discussed separately in the Project's Water Quality Management Plan.

Existing Conditions Peak Flow Rates

DMA	*Area (AC)*	*Q2(cfs)*	*Q10(cfs)*	*Q25 (cfs)*	*Q100 (cfs)*	*Tc (min)*
X1A	1.67	2.91	5.24	6.24	8.0	6.46
X1B	20.93	22.71	43.09	52.06	68.07	11.92
Site Total	22.60	25.62	48.33	58.30	76.08	

Refer to the "Existing Conditions Hydrology Map" located within Appendix C of this study for more information.

IV. Proposed Conditions

The proposed development consists of 405 residential units within 101 buildings. Building types include a mix of three-story duplexes, four-story duplexes, and townhomes. The site will be accessed from Aliso Viejo Parkway via one (1) primary driveway. The project includes internal drive aisles, surface parking areas, landscaped areas, open space, and recreational amenities.

Drive aisles and parking areas will consist of asphalt concrete (AC) pavement. Pedestrian pathways and sidewalks within open space areas will consist of Portland Cement Concrete (PCC). Landscaped areas will include vegetation and trees maintained by an appointed property management company. Long-term maintenance responsibility will remain with the developer until formation of a Homeowners Association (HOA), at which time maintenance obligations will transfer to the HOA. Each residential unit will be provided with separate domestic water and sanitary sewer services. Trash collection will be provided via individual bins serviced by a waste management company under contract with the developer/ HOA.

The project is designed to maintain existing drainage patterns to the maximum extent feasible. Stormwater runoff will be collected, treated, and detained onsite prior to controlled discharge to the public storm drain system. The onsite private storm drain system will manage the required Water Quality Design Capture Volume (DCV) and convey the 25-year storm event at designated low points onsite. Refer to the project Water Quality Management Plan (WQMP) for detailed DCV calculations.

Flows generated by the 100-year storm event will be conveyed through controlled overflow at designated low points. Flood level protection is incorporated throughout the site.

The site is divided into two (2) primary drainage management areas, each with subordinate subareas. Surface runoff will be conveyed overland via curb and gutter within the internal streets to proposed catch basins. Landscaped areas will include area drains to collect and convey runoff. Street and area drain flows will be discharged to Modular Wetland Systems (MWS) units that provide pretreatment of low flows. Each MWS unit includes an internal weir that allows high flows to bypass treatment and enter the underground storm drain system.

Runoff will be discharged to a proposed subsurface detention vault designed to provide hydromodification management and peak flow mitigation. The detention facility includes an orifice outlet structure to regulate discharge rates. Consistent with existing drainage patterns, post-development flows will discharge to Aliso Creek, which ultimately drains to the Pacific Ocean at the Aliso Creek outlet.

The final layout and configuration of catch basins and area drains will be finalized during preparation of the improvement plans.

Proposed Conditions Peak Flow Rates

DMA	*Area (AC)*	*Q2(cfs)*	*Q10(cfs)*	*Q25 (cfs)*	*Q100 (cfs)*	*Tc (min)*
P1A	1.19	1.85	3.38	4.04	5.19	7.47
P1B	21.41	22.53	44.43	54.26	70.61	11.72
Site Total	22.6	24.38	47.81	58.30	75.81	

Refer to the Hydrology Maps within Appendix A of this study for additional information and references to the offsite overflow discharge locations and proposed onsite drainage.

V. Methodology

All drainage subareas were analyzed using methods outlines in the 1986 Orange County Hydrology Manual and its 1996 Addendum. Each subarea was analyzed for acreage, land-use, Volume, and time of concentration according to the Rational Method and using CivilDesign Engineering Sofware. The impervious coverage for Commercial Land Use was utilized for the existing condition while Condominium Land Use was utilized for the proposed development conditions.

In accordance with the Orange County Hydrology Manual, all habitable structures have a finished floor elevations to allow one foot of freeboard during the 100-year storm event analyzed at low-points throughout the proposed site. Curb and grate inlet catch basin and onsite conveyance pipes have been sized to convey runoff from the 25-year storm event. All grated inlet catch basins were sized based on a 50% clogging factor.

Hydrology calculations are located within Appendix B and Hydraulic calculations will be located within Appendix C of this study during final engineering.

VI. Design Considerations

- The onsite drainage areas were analyzed for a 2-, 10-, 25-, and 100-year storm events using the Rational Method per the County of Orange Hydrology Manual.
- The drainage area is located in the Hydrologic Soil Group D per the Orange County Technical Guidance Document (TGD), Figure XVI-2a.

- The proposed onsite storm drain system has been designed for the 25-year storm event and all proposed habitable structures designed at minimum finish floor elevation 1' above the 100-year water surface elevation per the Orange County Hydrology Manual requirements.
- Stormwater runoff overflow will be designed to match historic drainage patterns. The proposed overflow location has been designed to drain to the existing storm drain in Windsong
- Existing development conditions are estimated to correspond to Commercial land use with an impervious coverage of 90 percent. Proposed development conditions are estimated to correspond to Condominium land use with an impervious coverage of 65 percent. A refined imperviousness analysis will be performed during final engineering to verify these estimations.
- The Existing and Proposed Conditions Hydrology Maps located within Appendix A have been made a part of this study.
- Peak flow rates and time of concentration were calculated based on the Rational Method utilizing the Civil Design Engineering Software.

Runoff will be discharged to a proposed subsurface detention vault designed to provide hydromodification management and peak flow mitigation. The detention facility includes an orifice outlet structure to regulate discharge rates. Consistent with existing drainage patterns, post-development flows will discharge to Aliso Creek, which ultimately drains to the Pacific Ocean at the Aliso Creek outlet.

VII. Pipe Sizing Calculations

Onsite storm drainage pipes will be sized for 25-year frequency storm. The Qs are developed from pro-rating the flow generated in the hydrology analysis. Pipes are sized to flow in an open flow condition. A 4" pipe is the minimum size and used for single yard drains. A 6" pipe size will collect multiple yard drains. Pipe sizes 18" and larger are considered the mainline drainage pipes that are used to convey run-off to the proposed infiltration system.

Since all pipes are sized for open flow WSPG hydraulic pressure analysis is not warranted. Instead,

$Q_{max} = \frac{k'}{n} d^{8/3} s^{1/2}$ per King's Handbook

k'=0.463; d=pipe diameter (ft)

n=0.013*
S=0.005

Pipe Diameter	Max. Q (cfs)
8"	0.854
12"	2.518
15"	4.566
18"	7.425
24"	15.990
36"	47.146

n=0.013*
S=0.010

Pipe Diameter	Max. Q (cfs)
8"	1.208
12"	3.562
15"	6.457
18"	10.500
24"	22.614
36"	66.675

*A Manning's Roughness Coefficient of 0.013 has been utilized to represent the roughness coefficient of PVC and/or HDPE piping.

VIII. Detention Sizing

All existing storm drainage structures will be demolished. All runoff from the proposed development will be conveyed by roof downspouts, new area drains, curb and gutter, and catch basins to the water quality treatment system paired with a downstream detention system. The detention system serves to mitigate hydromodification (HMP) requirements.

Hydromodification mitigation requires post-development runoff flow rates and durations do not exceed pre-development conditions by more than 10% for the 2-year through 10-year storm events due to the potential to cause downstream erosion or degraded instream habitat. As runoff from this site is conveyed via earthen or otherwise unstabilized channels to the ultimate point of discharge, hydromodification is required. Stormwater is routed through the MWS units and enters the subsurface detention vault. Stormwater then flows through a 54-inch riser, exits through a 4.199-inch low-flow orifice at the bottom of the riser as well as a 4.28-foot wide by 1.46-foot tall notch and to the 30-inch R.C.P. storm drain to the south along Windsong. Placement and sizing of the orifice is designed to meet hydromodification objectives detailed in the project's WQMP.

IX. Conclusion

The proposed development decreases the overall peak flow rate for the 2-, 10-, 25-, and 100- year storm events when comparing existing condition to proposed condition therefore peak flow rate mitigation is not required. As described in the project WQMP, the detention facility was sized for hydromodification mitigation with the South Orange County Hydrology Model Software. Basin routing will be provided during final engineering. The grading for the site is designed to limit the diversion of existing flow patterns and maintain the existing runoff conditions for the overflow pathways to the extent feasible for the developed site conditions while also satisfying requirements established by governing agencies.

X. References

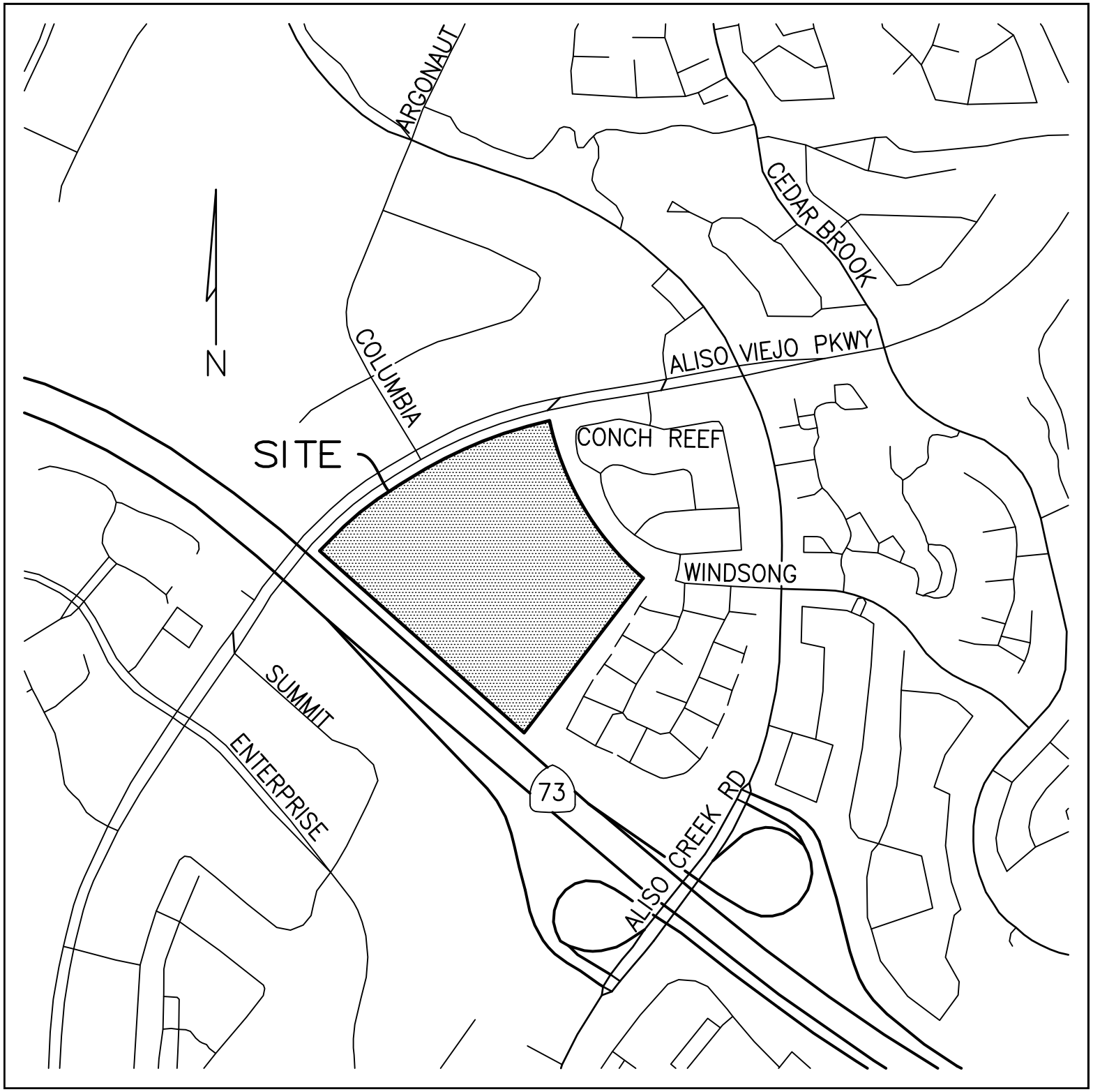
- Orange County Hydrology Manual (1986)
- Orange County Hydrology Manual Addendum (1996)
- Orange County Model Water Quality Management Plan
- Orange County Technical Guidance Document, South Orange County (2017)
- Civil Design Engineering Software
- Tentative Tract Map No. 19477 prepared by C&V Consulting, Inc.

APPENDIX A

MAPS AND EXHIBITS

APPENDIX A.1

VICINITY MAP

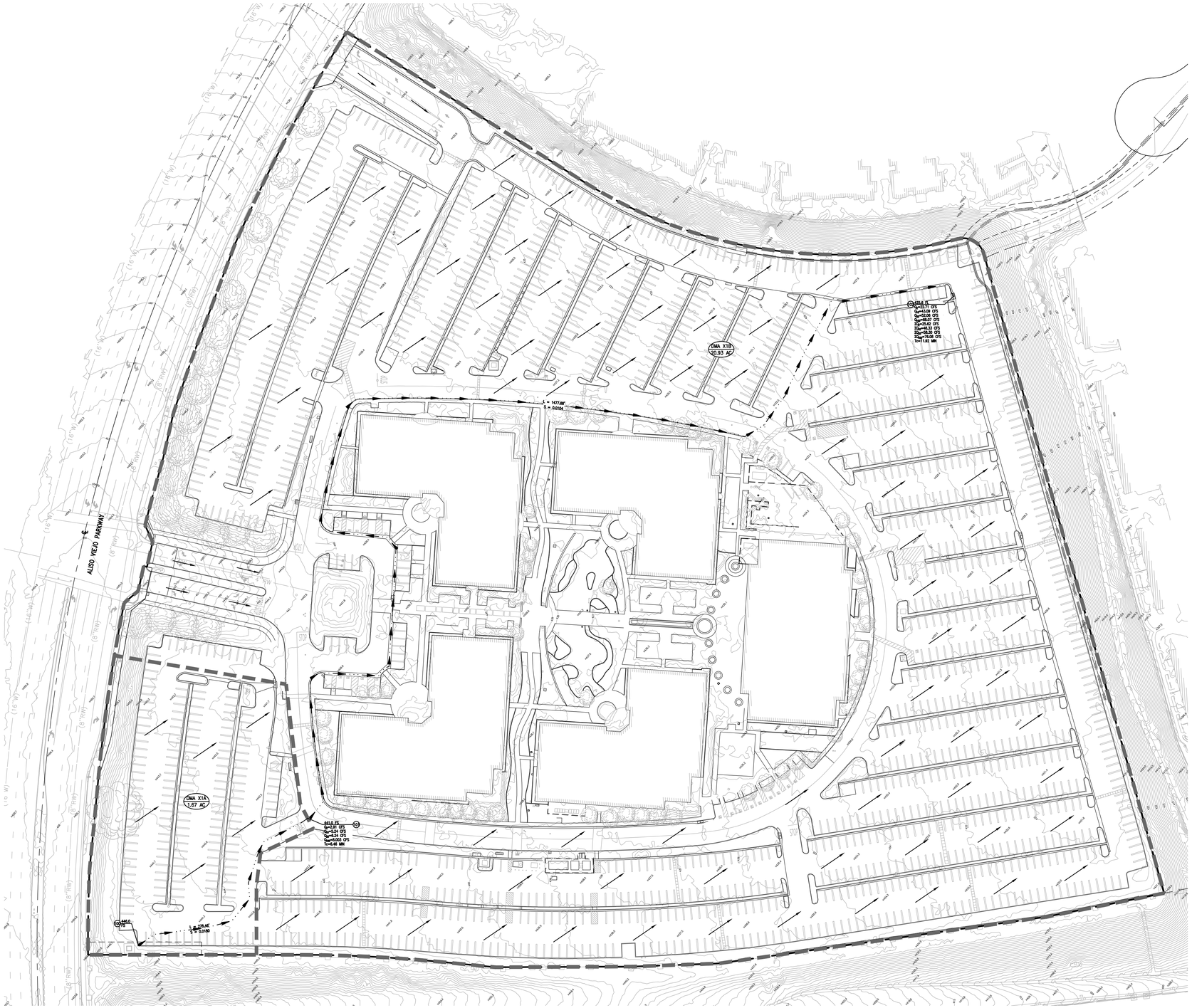


VICINITY MAP

NTS

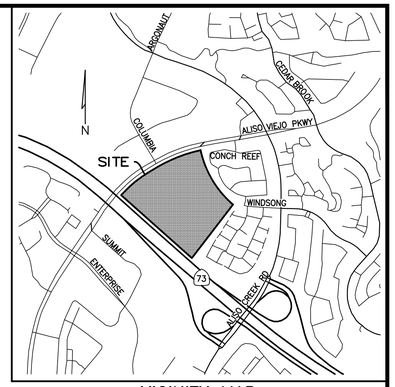
APPENDIX A.2

EXISTING CONDITIONS HYDROLOGY MAP



LEGEND

- EXISTING RIGHT-OF-WAY/ BOUNDARY
- PROPOSED RIGHT-OF-WAY/ BOUNDARY
- DRAINAGE AREA BOUNDARY
- SUB-DRAINAGE AREA BOUNDARY
- LONGEST FLOW PATH
- PROPOSED STORM DRAIN
- 98 PROPOSED CONTOUR
- PIPE FLOW PATH
- FLOW DIRECTION
- XX / X.XX AC — SUBAREA DRAINAGE AREA ID / DRAINAGE AREA IN ACRES
- 100 — INITIAL SUBAREA NODE
- (00.0) FS — SPOT ELEVATION
- Q_{100} =X.XX CFS — PEAK RUNOFF (CFS)
- Tc =X.X MIN — TIME OF CONCENTRATION (MIN)



VICINITY MAP
NTS

SITE INFORMATION

DMA	AREA (AC)	IMPERVIOUSNESS	PERVIOUSNESS	Q2(cfs)	Q10(cfs)	Q25(cfs)	Q100(cfs)	Tc (MIN)
X1A	1.67	90%	10%	2.91	5.24	6.24	8.00	6.46
X1B	20.93	90%	10%	22.71	43.09	52.06	68.07	11.92
TOTAL	22.60	90%	10%	25.62	48.33	58.30	76.08	

*LANDUSE CATEGORY USED IN HYDROLOGY CALCULATIONS IS PER THE ORANGE COUNTY HYDROLOGY MANUAL

1" = 60'

0 30 60 120

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CITY OF ALISO VIEJO
PLANNING DEPARTMENT

VESTING TENTATIVE TRACT MAP NO. 19477
EXISTING CONDITIONS HYDROLOGY MAP
POLARIS WAY
ALISO VIEJO, CA 92656

PROJECT NO. LENN-011

SHEET 1 OF 1

PLAN SET: PRELIM
DATE: 2/19/26

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BY: MARK SANDERS

APPENDIX A.3

PROPOSED CONDITIONS HYDROLOGY MAP



LEGEND

- EXISTING RIGHT-OF-WAY/ BOUNDARY
- PROPOSED RIGHT-OF-WAY/ BOUNDARY
- DRAINAGE AREA BOUNDARY
- SUB-DRAINAGE AREA BOUNDARY
- LONGEST FLOW PATH
- PROPOSED STORM DRAIN
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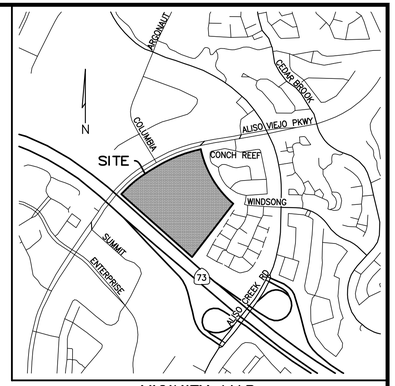
- Tc =X.X MIN — TIME OF CONCENTRATION (MIN)



VICINITY MAP
NTS

SITE INFORMATION

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P1A	1.19	65%	35%	1.85	3.38	4.04	5.19	7.47
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TOTAL	22.60	65%	35%	24.38	47.81	58.30	75.81	

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1" = 60'
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PLANNING DEPARTMENT

VESTING TENTATIVE TRACT MAP NO. 19477
PRELIMINARY PROPOSED CONDITIONS HYDROLOGY MAP
POLARIS WAY
ALISO VIEJO, CA 92656

PROJECT NO. LENN-011
SHEET 1
OF 1

PLAN SET: PRELIM
DATE: 6/22/26
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BY: JMM 6/22/26

APPENDIX A.4

SOILS MAP

SUBJECT TO FURTHER REVISION

LEGEND

City Boundaries

Hydrologic Soil Groups

- A Soils
- B Soils
- C Soils
- D Soils

Source:
Soils: Natural Resources Conservation Service (NRCS)
Soil Survey - soil_ca678, Orange County & Western Riverside
Date of publication: 2006-02-08
http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm

LOS ANGELES COUNTY
ORANGE COUNTY
SAN BERNARDINO COUNTY
RIVERSIDE COUNTY

PROJECT SITE

0 2.5 5 10 Kilometers
0 1.8 3.6 7.2 Miles

P:\9526E\6-GIS\Mxds\Reports\InfiltrationFeasability_20110215\9526E_FigureXVI-2a_HydroSoils_20110215.mxd

TITLE: NRCS HYDROLOGIC SOILS GROUPS

JOB: ORANGE COUNTY INFILTRATION STUDY — ORANGE CO. CA

SCALE	1" = 1.8 miles
DESIGNED	TH
DRAWING	TH
CHECKED	BMP
DATE	02/09/11
JOB NO.	9526-E

PACE Advanced Water Engineering

FIGURE
XVI-2a

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 Orange County and Part of Riverside County, California



February 17, 2026

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.

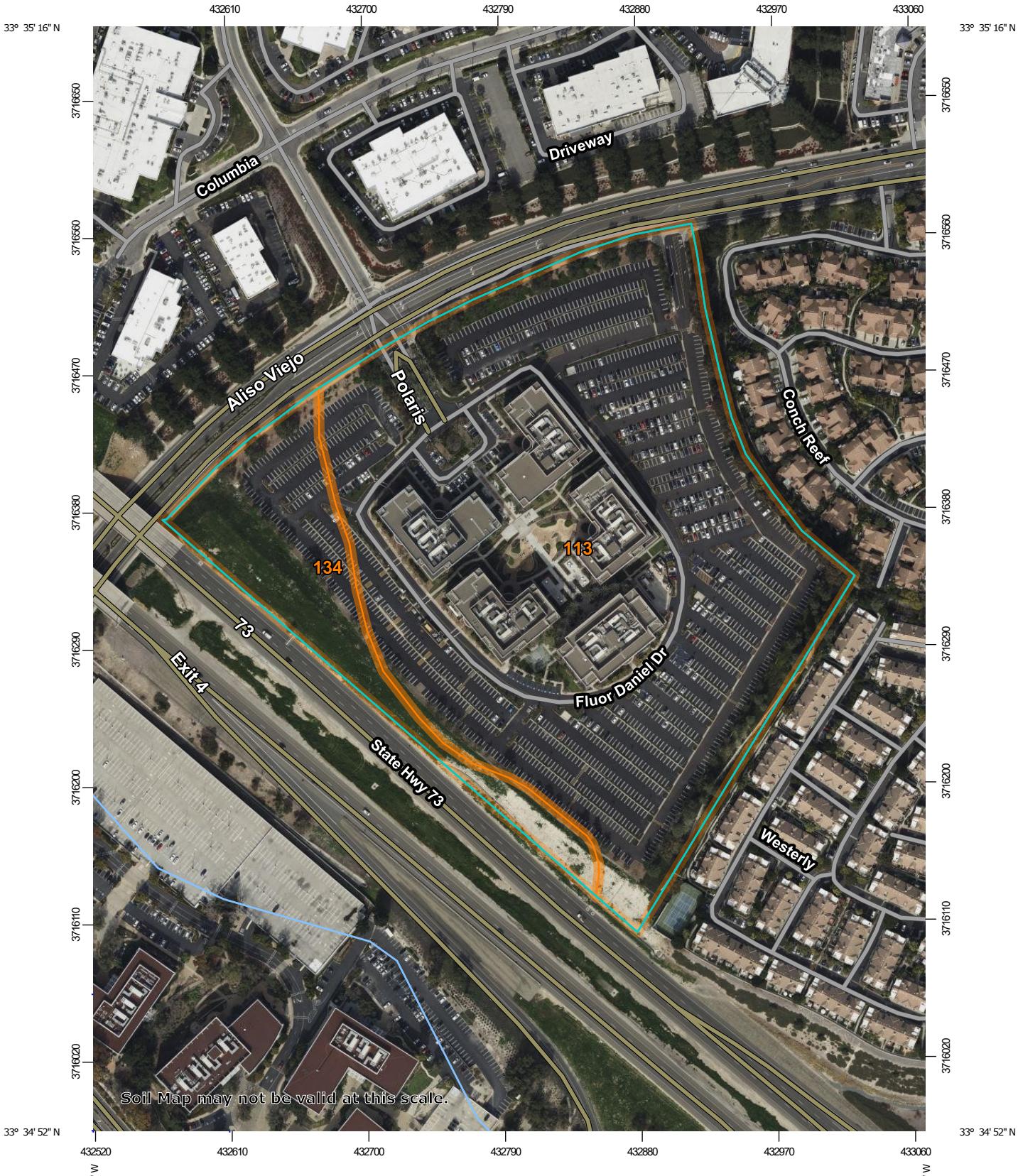
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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



Map Scale: 1:3,530 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 150 300 600 900

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 19, Sep 8, 2025

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

Date(s) aerial images were photographed: Jan 17, 2023—Feb 8, 2023

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

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
113	Balcom clay loam, 30 to 50 percent slopes	23.1	85.2%
134	Calleguas clay loam, 50 to 75 percent slopes, eroded	4.0	14.8%
Totals for Area of Interest		**27.2**	**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 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.

Orange County and Part of Riverside County, California

113—Balcom clay loam, 30 to 50 percent slopes

Map Unit Setting

National map unit symbol: hcln
Elevation: 70 to 1,720 feet
Mean annual precipitation: 14 to 17 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 260 to 320 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Balcom

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Calcareous residuum weathered from sandstone and shale

Typical profile

H1 - 0 to 30 inches: clay loam
H2 - 30 to 59 inches: weathered bedrock

Properties and qualities

Slope: 30 to 50 percent
Depth to restrictive feature: 24 to 36 inches to paralithic bedrock
Drainage class: Well drained
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 content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: R019XD001CA - CLAYEY
Hydric soil rating: No

Minor Components

Bosanko, clay

Percent of map unit: 5 percent
Hydric soil rating: No

Calleguas, clay loam
Percent of map unit: 4 percent
Hydric soil rating: No

Cieneba, sandy loam
Percent of map unit: 3 percent
Hydric soil rating: No

Unnamed
Percent of map unit: 3 percent
Hydric soil rating: No

134—Calleguas clay loam, 50 to 75 percent slopes, eroded

Map Unit Setting
National map unit symbol: 2xm62
Landscape: Hills
Elevation: 220 to 2,110 feet
Mean annual precipitation: 13 to 18 inches
Mean annual air temperature: 64 to 65 degrees F
Frost-free period: 353 to 365 days
Farmland classification: Not prime farmland

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

Description of Calleguas

Setting
Landscape: Hills
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from calcareous shale

Typical profile
A1 - 0 to 7 inches: clay loam
A2 - 7 to 11 inches: clay loam
A3 - 11 to 15 inches: very channery clay loam
Cr - 15 to 59 inches: bedrock

Properties and qualities
Slope: 50 to 75 percent
Depth to restrictive feature: 10 to 20 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 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: Very low (about 2.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: R019XD071CA - SHALLOW CLAYEY
Hydric soil rating: No

Minor Components

Cieneba

Percent of map unit: 5 percent
Landscape: Hills
Landform: Hillslopes
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Balcom

Percent of map unit: 5 percent
Landscape: Hills
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Anaheim

Percent of map unit: 5 percent
Landscape: Hills
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

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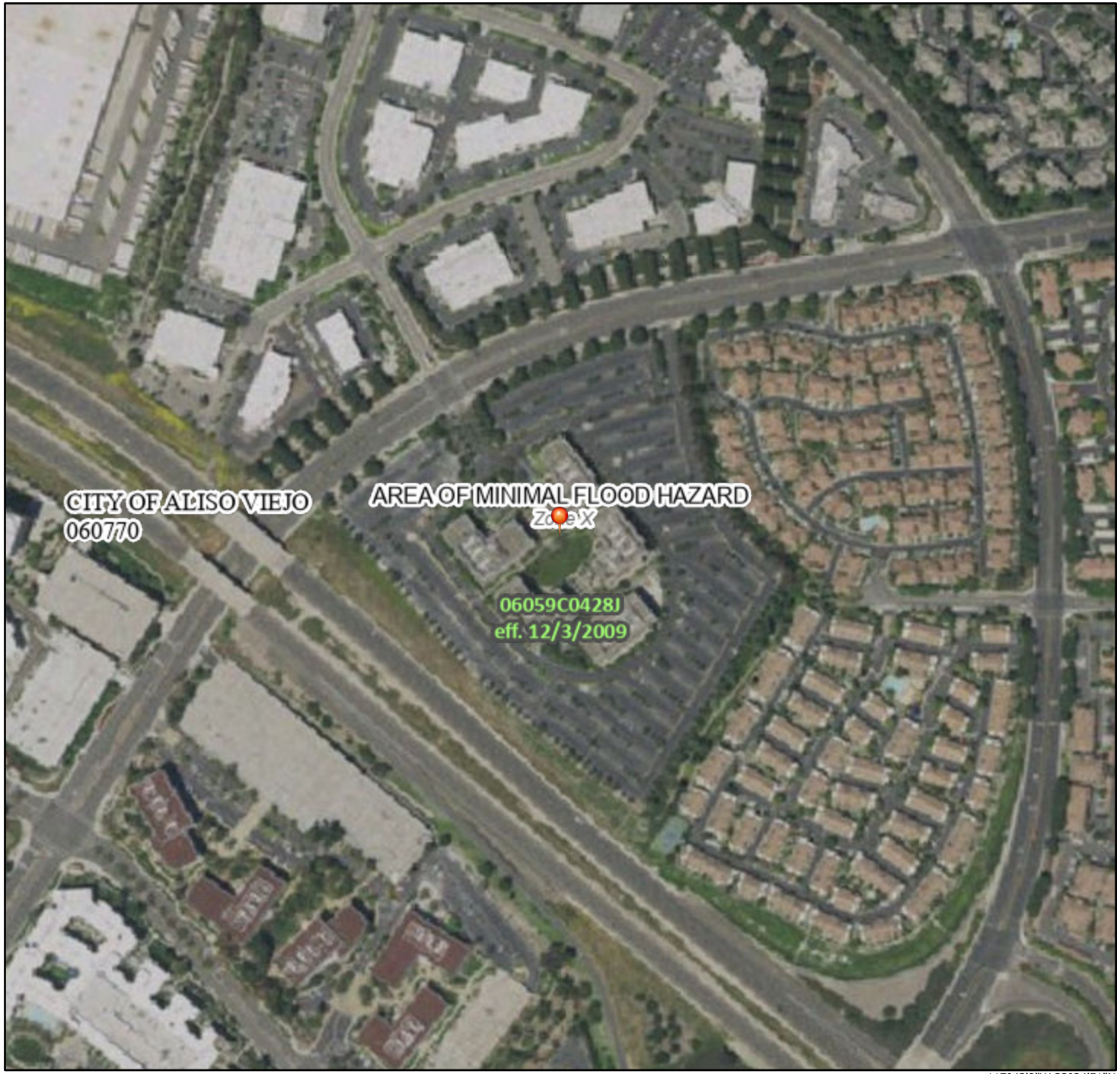
APPENDIX A.5

FEMA FLOOD MAP

National Flood Hazard Layer FIRMette

FEMA

117°43'45"W 33°35'21"N



117°43'8"W 33°34'51"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 8/13/2025 at 10:45 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

APPENDIX B

RATIONAL METHOD PEAK FLOW ANALYSIS

APPENDIX B.1

EXISTING CONDITIONS RATIONAL METHOD OUTPUT (2-, 10-, 25-, AND 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: 02/19/26 File Name: LENN11X2.roc

---

TTM 19477
ALISO VIEJO
LENN011
EXISTING Q2

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 ****

COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
SCS curve number for soil(AMC 2) = 75.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fp)= 0.200(In/Hr)
Max Catchment Loss (Fm) = 0.020(In/Hr)
Initial subarea data:
Initial area flow distance = 278.460(Ft.)
Top (of initial area) elevation = 446.000(Ft.)
Bottom (of initial area) elevation = 441.000(Ft.)
Difference in elevation = 5.000(Ft.)
Slope = 0.01796 s(%)= 1.80
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 6.456 min.
Rainfall intensity = 1.955(In/Hr) for a 2.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.891

```
Subarea runoff =      2.908(CFS)
Total initial stream area =        1.670(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      101.000 to Point/Station      102.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
________________________________________________________________________
Top of street segment elevation =   441.000(Ft.)
End of street segment elevation =   425.600(Ft.)
Length of street segment  =  1477.680(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  =  26.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
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) =   0.025
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  0.466(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 =     14.304(CFS)
Depth of flow =   0.404(Ft.), Average velocity =   3.491(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  20.244(Ft.)
Flow velocity =   3.49(Ft/s)
Travel time =    7.05 min.     TC =   13.51  min.
 Adding area flow to street
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
SCS curve number for soil(AMC 2)  = 75.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.200(In/Hr)
Max Catchment Loss (Fm) =     0.020(In/Hr)
Rainfall intensity =      1.279(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.886
Subarea runoff =     22.709(CFS) for   20.930(Ac.)
Total runoff =     25.618(CFS)  Total area =       22.60(Ac.)
Area averaged Fm value =    0.020(In/Hr)
Street flow at end of street =     25.618(CFS)
Half street flow at end of street =     25.618(CFS)
Depth of flow =   0.504(Ft.), Average velocity =   4.022(Ft/s)
Warning: depth of flow exceeds top of curb
Distance that curb overflow reaches into property =    0.14(Ft.)
```

Flow width (from curb towards crown)= 25.238(Ft.)
End of computations, total study area = 22.60 (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) = 75.0

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: 02/19/26 File Name: LENN11X10.roc

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TTM 19477
ALISO VIEJO
LENN011
EXISTING Q10

Program License Serial Number 6677

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

Rational hydrology study storm event year is 10.0

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 = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
SCS curve number for soil(AMC 2) = 75.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fp)= 0.200(In/Hr)
Max Catchment Loss (Fm) = 0.020(In/Hr)
Initial subarea data:
Initial area flow distance = 278.460(Ft.)
Top (of initial area) elevation = 446.000(Ft.)
Bottom (of initial area) elevation = 441.000(Ft.)
Difference in elevation = 5.000(Ft.)
Slope = 0.01796 s(%)= 1.80
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 6.456 min.
Rainfall intensity = 3.507(In/Hr) for a 10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.895

```
Subarea runoff =      5.240(CFS)
Total initial stream area =        1.670(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      101.000 to Point/Station      102.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
________________________________________________________________________
Top of street segment elevation =   441.000(Ft.)
End of street segment elevation =   425.600(Ft.)
Length of street segment  =  1477.680(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  =  26.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
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) =   0.025
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  0.466(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 =     26.815(CFS)
Depth of flow =   0.514(Ft.), Average velocity =   4.044(Ft/s)
Warning: depth of flow exceeds top of curb
Distance that curb overflow reaches into property =    0.55(Ft.)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  25.747(Ft.)
Flow velocity =   4.04(Ft/s)
Travel time =    6.09 min.     TC =   12.55  min.
 Adding area flow to street
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
SCS curve number for soil(AMC 2)  = 75.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.200(In/Hr)
Max Catchment Loss (Fm) =     0.020(In/Hr)
Rainfall intensity =      2.396(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.892
Subarea runoff =     43.093(CFS) for   20.930(Ac.)
Total runoff =     48.333(CFS)  Total area =       22.60(Ac.)
Area averaged Fm value =    0.020(In/Hr)
Street flow at end of street =     48.333(CFS)
Half street flow at end of street =     48.333(CFS)
Depth of flow =   0.633(Ft.), Average velocity =   4.706(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 =   5.32(Ft.)
Flow width (from curb towards crown)= 28.000(Ft.)
End of computations, total study area =   22.60 (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) = 75.0

Orange County Rational Hydrology Program

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

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LENN011
EXISTING Q25

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 = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
SCS curve number for soil(AMC 2) = 75.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fp)= 0.200(In/Hr)
Max Catchment Loss (Fm) = 0.020(In/Hr)
Initial subarea data:
Initial area flow distance = 278.460(Ft.)
Top (of initial area) elevation = 446.000(Ft.)
Bottom (of initial area) elevation = 441.000(Ft.)
Difference in elevation = 5.000(Ft.)
Slope = 0.01796 s(%)= 1.80
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 6.456 min.
Rainfall intensity = 4.174(In/Hr) for a 25.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.896

```
Subarea runoff =      6.244(CFS)
Total initial stream area =        1.670(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      101.000 to Point/Station      102.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
________________________________________________________________________
Top of street segment elevation =   441.000(Ft.)
End of street segment elevation =   425.600(Ft.)
Length of street segment  =  1477.680(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  =  26.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
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) =   0.025
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  0.466(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 =     32.310(CFS)
Depth of flow =   0.555(Ft.), Average velocity =   4.150(Ft/s)
Warning: depth of flow exceeds top of curb
Distance that curb overflow reaches into property =    2.19(Ft.)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  27.796(Ft.)
Flow velocity =   4.15(Ft/s)
Travel time =    5.93 min.     TC =   12.39  min.
 Adding area flow to street
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
SCS curve number for soil(AMC 2)  = 75.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.200(In/Hr)
Max Catchment Loss (Fm) =     0.020(In/Hr)
Rainfall intensity =      2.886(In/Hr) for a    25.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.894
Subarea runoff =     52.055(CFS) for   20.930(Ac.)
Total runoff =     58.299(CFS)  Total area =       22.60(Ac.)
Area averaged Fm value =    0.020(In/Hr)
Street flow at end of street =     58.299(CFS)
Half street flow at end of street =     58.299(CFS)
Depth of flow =   0.670(Ft.), Average velocity =   5.063(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 =   6.81(Ft.)
Flow width (from curb towards crown)= 28.000(Ft.)
End of computations, total study area =   22.60 (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) = 75.0

Orange County Rational Hydrology Program

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

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EXISTING Q100

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 = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
SCS curve number for soil(AMC 2) = 75.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fp)= 0.200(In/Hr)
Max Catchment Loss (Fm) = 0.020(In/Hr)
Initial subarea data:
Initial area flow distance = 278.460(Ft.)
Top (of initial area) elevation = 446.000(Ft.)
Bottom (of initial area) elevation = 441.000(Ft.)
Difference in elevation = 5.000(Ft.)
Slope = 0.01796 s(%)= 1.80
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 6.456 min.
Rainfall intensity = 5.345(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.897

```
Subarea runoff =      8.003(CFS)
Total initial stream area =        1.670(Ac.)


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Process from Point/Station      101.000 to Point/Station      102.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
________________________________________________________________________
Top of street segment elevation =   441.000(Ft.)
End of street segment elevation =   425.600(Ft.)
Length of street segment  =  1477.680(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  =  26.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
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) =   0.025
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  0.466(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 =     42.069(CFS)
Depth of flow =   0.605(Ft.), Average velocity =   4.503(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 =    4.19(Ft.)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  28.000(Ft.)
Flow velocity =   4.50(Ft/s)
Travel time =    5.47 min.     TC =   11.92  min.
 Adding area flow to street
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
SCS curve number for soil(AMC 2)  = 75.00
Pervious ratio(Ap) = 0.1000  Max loss rate(Fp)=     0.200(In/Hr)
Max Catchment Loss (Fm) =     0.020(In/Hr)
Rainfall intensity =      3.760(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.895
Subarea runoff =     68.073(CFS) for   20.930(Ac.)
Total runoff =     76.076(CFS)  Total area =       22.60(Ac.)
Area averaged Fm value =    0.020(In/Hr)
Street flow at end of street =     76.076(CFS)
Half street flow at end of street =     76.076(CFS)
```

Depth of flow = 0.730(Ft.), Average velocity = 5.632(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 = 9.19(Ft.)
Flow width (from curb towards crown)= 28.000(Ft.)
End of computations, total study area = 22.60 (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) = 75.0

APPENDIX B.2

PROPOSED CONDITIONS RATIONAL METHOD OUTPUT (2-, 10-, 25-, AND 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: 02/19/26 File Name: LENN11P2.roc

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LENN011
PROPOSED Q2

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 = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
SCS curve number for soil(AMC 2) = 75.00
Pervious ratio(Ap) = 0.3500 Max loss rate(Fp)= 0.200(In/Hr)
Max Catchment Loss (Fm) = 0.070(In/Hr)
Initial subarea data:
Initial area flow distance = 253.600(Ft.)
Top (of initial area) elevation = 447.850(Ft.)
Bottom (of initial area) elevation = 443.600(Ft.)
Difference in elevation = 4.250(Ft.)
Slope = 0.01676 s(%)= 1.68
TC = k(0.360)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 7.466 min.
Rainfall intensity = 1.798(In/Hr) for a 2.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.865

```
Subarea runoff =      1.851(CFS)
Total initial stream area =        1.190(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      101.000 to Point/Station      102.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
________________________________________________________________________
Top of street segment elevation =   443.600(Ft.)
End of street segment elevation =   428.620(Ft.)
Length of street segment  =  1322.730(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  20.000(Ft.)
Distance from crown to crossfall grade break  =  18.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
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) =   0.025
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  0.466(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 =     13.147(CFS)
Depth of flow =   0.385(Ft.), Average velocity =   3.528(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  19.307(Ft.)
Flow velocity =   3.53(Ft/s)
Travel time =    6.25 min.     TC =   13.72  min.
 Adding area flow to street
CONDOMINIUM subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
SCS curve number for soil(AMC 2)  = 75.00
Pervious ratio(Ap) = 0.3500  Max loss rate(Fp)=     0.200(In/Hr)
Max Catchment Loss (Fm) =     0.070(In/Hr)
Rainfall intensity =      1.268(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.850
Subarea runoff =     22.526(CFS) for   21.410(Ac.)
Total runoff =     24.377(CFS)  Total area =       22.60(Ac.)
Area averaged Fm value =    0.070(In/Hr)
Street flow at end of street =     24.377(CFS)
Half street flow at end of street =     24.377(CFS)
Depth of flow =   0.473(Ft.), Average velocity =   4.447(Ft/s)
Note:  depth of flow exceeds top of street crown.
Flow width (from curb towards crown)=  20.000(Ft.)
```

End of computations, total study area = 22.60 (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) = 75.0

Orange County Rational Hydrology Program

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

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LENN011
PROPOSED Q10

Program License Serial Number 6677

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

Rational hydrology study storm event year is 10.0

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 = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
SCS curve number for soil(AMC 2) = 75.00
Pervious ratio(Ap) = 0.3500 Max loss rate(Fp)= 0.200(In/Hr)
Max Catchment Loss (Fm) = 0.070(In/Hr)
Initial subarea data:
Initial area flow distance = 253.600(Ft.)
Top (of initial area) elevation = 447.850(Ft.)
Bottom (of initial area) elevation = 443.600(Ft.)
Difference in elevation = 4.250(Ft.)
Slope = 0.01676 s(%)= 1.68
TC = k(0.360)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 7.466 min.
Rainfall intensity = 3.226(In/Hr) for a 10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.880

```
Subarea runoff =      3.380(CFS)
Total initial stream area =        1.190(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      101.000 to Point/Station      102.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
________________________________________________________________________
Top of street segment elevation =   443.600(Ft.)
End of street segment elevation =   428.620(Ft.)
Length of street segment  =  1322.730(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  20.000(Ft.)
Distance from crown to crossfall grade break  =  18.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
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) =   0.025
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  0.466(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 =     25.625(CFS)
Depth of flow =   0.481(Ft.), Average velocity =   4.536(Ft/s)
Note:  depth of flow exceeds top of street crown.
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  20.000(Ft.)
Flow velocity =   4.54(Ft/s)
Travel time =    4.86 min.     TC =   12.33  min.
 Adding area flow to street
CONDOMINIUM subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
SCS curve number for soil(AMC 2)  = 75.00
Pervious ratio(Ap) = 0.3500  Max loss rate(Fp)=     0.200(In/Hr)
Max Catchment Loss (Fm) =     0.070(In/Hr)
Rainfall intensity =      2.421(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.874
Subarea runoff =     44.431(CFS) for   21.410(Ac.)
Total runoff =     47.811(CFS)  Total area =       22.60(Ac.)
Area averaged Fm value =    0.070(In/Hr)
Street flow at end of street =     47.811(CFS)
Half street flow at end of street =     47.811(CFS)
Depth of flow =   0.626(Ft.), Average velocity =   5.404(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 =   5.02(Ft.)
Flow width (from curb towards crown)= 20.000(Ft.)
End of computations, total study area =   22.60 (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) = 75.0

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: 02/19/26 File Name: LENN11P25.roc

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LENN011
PROPOSED Q25

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 = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
SCS curve number for soil(AMC 2) = 75.00
Pervious ratio(Ap) = 0.3500 Max loss rate(Fp)= 0.200(In/Hr)
Max Catchment Loss (Fm) = 0.070(In/Hr)
Initial subarea data:
Initial area flow distance = 253.600(Ft.)
Top (of initial area) elevation = 447.850(Ft.)
Bottom (of initial area) elevation = 443.600(Ft.)
Difference in elevation = 4.250(Ft.)
Slope = 0.01676 s(%)= 1.68
TC = k(0.360)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 7.466 min.
Rainfall intensity = 3.844(In/Hr) for a 25.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.884

```
Subarea runoff =      4.042(CFS)
Total initial stream area =        1.190(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      101.000 to Point/Station      102.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
________________________________________________________________________
Top of street segment elevation =   443.600(Ft.)
End of street segment elevation =   428.620(Ft.)
Length of street segment  =  1322.730(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  20.000(Ft.)
Distance from crown to crossfall grade break  =  18.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
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) =   0.025
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  0.466(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 =     31.196(CFS)
Depth of flow =   0.521(Ft.), Average velocity =   4.841(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 =    0.83(Ft.)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  20.000(Ft.)
Flow velocity =   4.84(Ft/s)
Travel time =    4.55 min.     TC =   12.02  min.
 Adding area flow to street
CONDOMINIUM subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
SCS curve number for soil(AMC 2)  = 75.00
Pervious ratio(Ap) = 0.3500  Max loss rate(Fp)=     0.200(In/Hr)
Max Catchment Loss (Fm) =     0.070(In/Hr)
Rainfall intensity =      2.936(In/Hr) for a    25.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.879
Subarea runoff =     54.255(CFS) for   21.410(Ac.)
Total runoff =     58.297(CFS)  Total area =       22.60(Ac.)
Area averaged Fm value =    0.070(In/Hr)
Street flow at end of street =     58.297(CFS)
Half street flow at end of street =     58.297(CFS)
```

Depth of flow = 0.672(Ft.), Average velocity = 5.813(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 = 6.88(Ft.)
Flow width (from curb towards crown)= 20.000(Ft.)
End of computations, total study area = 22.60 (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) = 75.0

Orange County Rational Hydrology Program

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

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LENN011
PROPOSED Q100

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 = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
SCS curve number for soil(AMC 2) = 75.00
Pervious ratio(Ap) = 0.3500 Max loss rate(Fp)= 0.200(In/Hr)
Max Catchment Loss (Fm) = 0.070(In/Hr)
Initial subarea data:
Initial area flow distance = 253.600(Ft.)
Top (of initial area) elevation = 447.850(Ft.)
Bottom (of initial area) elevation = 443.600(Ft.)
Difference in elevation = 4.250(Ft.)
Slope = 0.01676 s(%)= 1.68
TC = k(0.360)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 7.466 min.
Rainfall intensity = 4.917(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.887

```
Subarea runoff =      5.191(CFS)
Total initial stream area =        1.190(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      101.000 to Point/Station      102.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
________________________________________________________________________
Top of street segment elevation =   443.600(Ft.)
End of street segment elevation =   428.620(Ft.)
Length of street segment  =  1322.730(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  20.000(Ft.)
Distance from crown to crossfall grade break  =  18.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
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) =   0.025
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  0.466(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 =     40.531(CFS)
Depth of flow =   0.583(Ft.), Average velocity =   5.178(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 =    3.33(Ft.)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  20.000(Ft.)
Flow velocity =   5.18(Ft/s)
Travel time =    4.26 min.     TC =   11.72  min.
 Adding area flow to street
CONDOMINIUM subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
SCS curve number for soil(AMC 2)  = 75.00
Pervious ratio(Ap) = 0.3500  Max loss rate(Fp)=     0.200(In/Hr)
Max Catchment Loss (Fm) =     0.070(In/Hr)
Rainfall intensity =      3.797(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.883
Subarea runoff =     70.614(CFS) for   21.410(Ac.)
Total runoff =     75.805(CFS)  Total area =       22.60(Ac.)
Area averaged Fm value =    0.070(In/Hr)
Street flow at end of street =     75.805(CFS)
Half street flow at end of street =     75.805(CFS)
```

Depth of flow = 0.739(Ft.), Average velocity = 6.457(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 = 9.56(Ft.)
Flow width (from curb towards crown)= 20.000(Ft.)
End of computations, total study area = 22.60 (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) = 75.0

APPENDIX C

HYDRAULIC CALCULATIONS
TO BE PROVIDED DURING FINAL ENGINEERING

APPENDIX D

REFERENCES

APPENDIX D.1

VTTM 19477

VESTING TENTATIVE TRACT MAP NO. 19477

FOR CONDOMINIUM PURPOSES

IN THE CITY OF ALISO VIEJO, COUNTY OF ORANGE, STATE OF CALIFORNIA

LEGAL DESCRIPTION:
*SEE SHEET 2

SITE ADDRESS:
1,2,3,4,5 POLARIS WAY
ALISO VIEJO, CA 92656

VESTED OWNER:
(LD PARCEL I):
BPM INVESTMENTS, LLC, A CALIFORNIA LIMITED LIABILITY COMPANY
(LD PARCEL II AND III):
TR POLARIS LLC, A DELAWARE LIMITED LIABILITY COMPANY
(LD PARCEL IV AND V):
DRAWBRIDGE 5 POLARIS WAY, LLC, A DELAWARE LIMITED LIABILITY COMPANY

BASIS OF BEARINGS:
THE BEARINGS SHOWN HEREON ARE BASED ON THE BEARING N60°31'33"W BETWEEN CALIFORNIA SPATIAL REFERENCE CENTER, CSRC, CONTINUOUSLY OPERATING REFERENCE STATIONS, CORS, "SBCC" AND "TRAK".

DATUM STATEMENT:
ALL COORDINATES SHOWN HEREON ARE GRID VALUES BASED ON THE CALIFORNIA COORDINATE SYSTEM OF 1983, CCS83, ZONE 6, (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 0.9999473620 WAS USED FOR THIS PROJECT AT NORTHING 2159903.09, EASTING 6112255.26. TO OBTAIN GRID DISTANCES, MULTIPLY GROUND DISTANCES BY THE COMBINATION SCALE FACTOR.

	NORTHING	EASTING
SBCC:	2147751.75	6131651.74
TRAK:	2171992.61	6088761.20

BENCHMARK STATEMENT:
ORANGE COUNTY BENCHMARK NO. 3X–50–84
ELEV: 282.962 (NAVD88 FT)
DESCRIBED AS: FOUND 3 3\4" OCS ALUMINUM BENCHMARK DISK STAMPED "3X–50–84", SET IN THE TOP OF A CONCRETE BRIDGE DECK. MONUMENT IS LOCATED IN THE NORTHEASTERLY CORNER OF THE INTERSECTION OF MOULTON PARKWAY AND THE ALISO CREEK OVERCROSSING, 102 FT. NORTHERLY OF THE CENTERLINE OF ALISO CREEK, 60 FT. EASTERLY OF THE CENTERLINE OF MOULTON AND 0.5 MILES NORTHERLY ALONG MOULTON FROM THE CENTERLINE OF ALICIA PARKWAY. MONUMENT IS SET LEVEL WITH THE SIDEWALK.

FLOOD NOTE:
THE SUBJECT PROPERTY FALLS WITHIN "ZONE X – AREA OF MINIMAL FLOOD HAZARD" PER FEMA MAP NO. 06059C0428J, A PRINTED PANEL, EFFECTIVE DECEMBER 3, 2009.

LAND USE SUMMARY:
TOTAL PROPOSED LOTS: 6
TOTAL PROPOSED DWELLING UNITS: 405

NUMBERED LOT SUMMARY	
LOT	AREA
1	7.478 AC.
2	6.586 AC.
3	3.621 AC.

NUMBERED LOT SUMMARY	
LOT	AREA
4	3.114 AC.
5	0.849 AC.
6	0.951 AC.

UTILITY PURVEYORS & SERVICES:

WATER:	MOULTON NIGUEL WATER DISTRICT	(949) 831–2500
SEWER:	SOUTH ORANGE COUNTY WASTEWATER	(949) 234–5400
ELECTRIC:	SOUTHERN CALIFORNIA EDISON	(800) 655–4555
GAS:	SOCAL GAS	(800) 655–4555
TELEPHONE:	AT&T	(949) 440–6610
CABLE:	COX COMMUNICATIONS	(949) 546–2000
TRASH/REFUSE:	CR&R DISPOSAL & RECYCLING	(877) 728–0446
SCHOOL DISTRICT:	CAPISTRANO UNIFIED SCHOOL DISTRICT	(949) 234–9200

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

EXISTING EASEMENTS:
(#) DENOTES PLOTTED ITEM.

1. AN AIRCRAFT OPERATIONS, SOUND, AIR SPACE AND AVIGATION EASEMENT OVER SAID LAND SHOWN HEREIN ABOVE FOR PURPOSES AND SUBJECT TO THE SAME CONDITIONS AND LIMITATIONS AS SHOWN ON THAT CERTAIN EASEMENT RECORDED JULY 2, 1979 IN BOOK 13213, PAGE 1111, OFFICIAL RECORDS OF ORANGE COUNTY, CALIFORNIA AS DEDICATED TO THE COUNTY OF ORANGE ON THE MAP OF TRACT NO. 14310 AS PER MAP FILED IN BOOK 670, PAGES 45 AND 46 , TRACT NO. 14311 AS PER MAP FILED IN BOOK 724, PAGES 49 AND 50, TRACT NO. 14312 PER MAP FILED IN BOOK 725, PAGES 49 AND 50, TRACT NO. 14313 PER MAP FILED IN BOOK 726, PAGES 47 AND 48, TRACT NO. 14314 PER MAP FILED IN BOOK 726, PAGES 49 AND 50, TRACT NO. 14315 PER MAP FILED IN BOOK 727, PAGES 1 AND 2, TRACT NO. 14323 AS PER MAP FILED IN BOOK 714, PAGES 49 AND 50, TRACT NO. 14324 AS PER MAP FILED IN BOOK 715, PAGES 9 AND 10, AND TRACT NO. 14972 AS PER MAP FILED IN BOOK 715, PAGES 11 AND 12 ALL OF MISCELLANEOUS MAPS.
(BLANKET IN NATURE)

2. COVENANTS, CONDITIONS, RESTRICTIONS, EASEMENTS, ASSESSMENTS, LIENS, CHARGES, TERMS AND PROVISIONS IN THE DOCUMENT RECORDED APRIL 6, 1982 AS INSTRUMENT NO. 1982–118353 OF OFFICIAL RECORDS. A DECLARATION OF ANNEXATION RECORDED DECEMBER 19, 1997 AS INSTRUMENT NO. 19970653371 OF OFFICIAL RECORDS.
(BLANKET IN NATURE)(TO BE TERMINATED)

3. THE TERMS AND PROVISIONS CONTAINED IN THE DOCUMENT ENTITLED "DECLARATION AND NOTICE CONCERNING AIRCRAFT ENVIRONMENTAL IMPACTS" RECORDED DECEMBER 01, 1983 AS INSTRUMENT NO. 83–549335 OF OFFICIAL RECORDS.
(BLANKET IN NATURE)

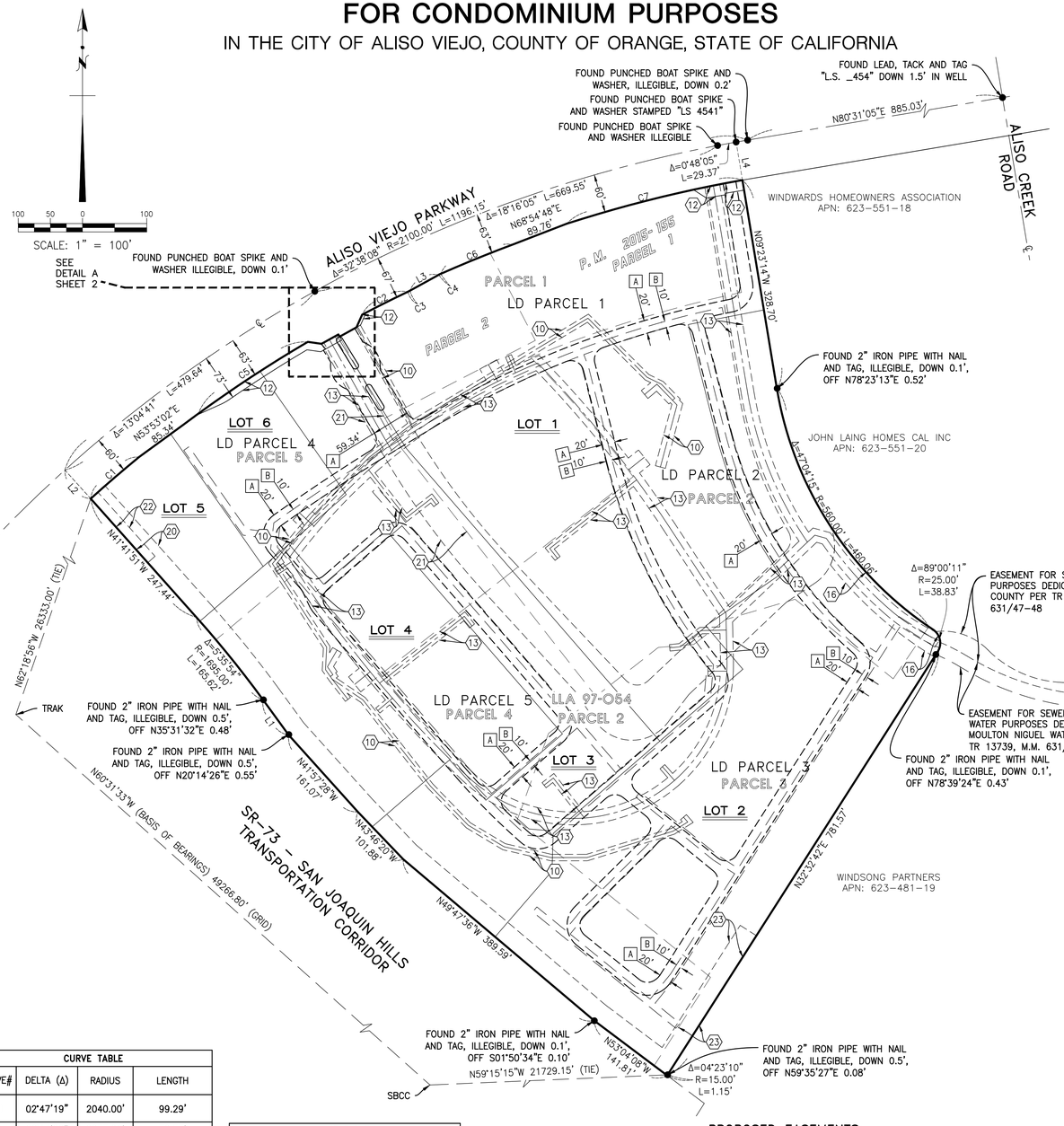
4. ABUTTER'S RIGHT OF INGRESS AND EGRESS TO OR FROM ALISO VIEJO PARKWAY (FORMERLY KNOWN AS LAGUNA HILLS DRIVE), EXCEPT AT STREET INTERSECTIONS AND APPROVED ACCESS LOCATIONS, HAVE BEEN DEDICATED OR RELINQUISHED ON THE MAP OF TRACT NO. 14310 ON FILE IN BOOK 670, PAGE 45 AND 46, OF TRACT MAPS AND ON THE MAP OF TRACT NO. 14323 ON FILE IN BOOK 714, PAGES 49 AND 50, OF TRACT MAPS.
(TO BE QUITCLAIMED AND NEW RELINQUISHMENT GRANTED TO SUPPORT SITE DEVELOPMENT)

5. ABUTTER'S RIGHTS OF INGRESS AND EGRESS TO OR FROM ALISO VIEJO PARKWAY, EXCEPT AT APPROVED ACCESS LOCATIONS, HAVE BEEN DEDICATED OR RELINQUISHED ON THE MAP OF TRACT NO. 14313 ON FILE AUGUST 7, 1995 IN BOOK 726, PAGE 47 AND 48.
(TO BE QUITCLAIMED AND NEW RELINQUISHMENT GRANTED TO SUPPORT SITE DEVELOPMENT)

6. ABUTTER'S RIGHTS OF INGRESS AND EGRESS TO OR FROM SAN JOAQUIN HILLS TRANSPORTATION CORRIDOR, HAVE BEEN DEDICATED OR RELINQUISHED ON THE MAP OF TRACT NO. 14323 ON FILE IN BOOK 714, PAGE 49 AND 50 AND TRACT NO. 14324 ON FILE IN BOOK 715, PAGES 9 AND 10 AND TRACT NO. 14972 ON FILE IN BOOK 715, PAGE 11 AND 12, ALL OF TRACT MAPS.

7. ABUTTER'S RIGHTS OF INGRESS AND EGRESS TO OR FROM SAN JOAQUIN HILLS TRANSPORTATION CORRIDOR AGENCY HAVE BEEN RELINQUISHED IN THE DOCUMENT RECORDED APRIL 07, 1997 AS INSTRUMENT NO. 19970158724 AND RECORDED JUNE 23, 1997, AS INSTRUMENT NO. 19970289042, BOTH OF OFFICIAL RECORDS, AND AS CORRECTED BY A DOCUMENT RECORDED OCTOBER 10, 1997, AS INSTRUMENT NO. 19970511593, ALL OF OFFICIAL RECORDS.

8. THE TERMS AND PROVISIONS CONTAINED IN THE DOCUMENT ENTITLED "4TH REVISED ALISO VIEJO PLANNED COMMUNITY DEVELOPMENT PLAN AND SUPPLEMENTAL TEXT" RECORDED JULY 03, 1991 AS INSTRUMENT NO. 91346274 OF OFFICIAL RECORDS.
(BLANKET IN NATURE)



CURVE TABLE			
CURVE#	DELTA (Δ)	RADIUS	LENGTH
C1	02°47'19"	2040.00'	99.29'
C2	02°14'29"	2033.00'	79.53'
C3	03°21'51"	62.00'	3.64'
C4	05°00'04"	38.00'	3.32'
C5	06°32'50"	2037.00'	232.77'
C6	03°24'35"	2037.00'	121.22'
C7	07°55'24"	2040.00'	282.11'

LINE TABLE		
LINE#	BEARING	LENGTH
L1	N36°05'57"W	67.14'
L2	N42°07'03"W	60.00'
L3	N61°09'24"E	51.33'
L4	N09°23'14"E	60.00'

SURVEYOR'S STATEMENT:
THIS SURVEY ON WHICH THIS VESTING TENTATIVE MAP IS BASED WAS DONE BY ME, OR UNDER MY DIRECTION. FIELDWORK WAS COMPLETED ON AUGUST 22, 2025.

DANE P. MCDOUGALL, L.S. 9297

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

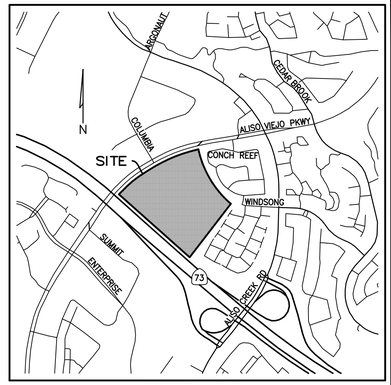
ENGINEER'S STATEMENT:
THIS VESTING TENTATIVE MAP WAS PREPARED BY ME, OR UNDER MY DIRECTION ON FEBRUARY 19, 2026.

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

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

SUBDIVIDER:
LENNAR HOMES OF CALIFORNIA, INC.
15131 ALTON PARKWAY,
IRVINE, CA 92618
CONTACT: DEREK KEGLEY
(949)507–1292

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



VICINITY MAP
SCALE: NONE

EXISTING EASEMENTS:
(#) DENOTES PLOTTED ITEM.

9. THE TERMS AND PROVISIONS CONTAINED IN THE DOCUMENT ENTITLED "AGREEMENT FOR DRAINAGE ENCUMBRANCE" RECORDED OCTOBER 03, 1994 AS INSTRUMENT NO. 1994–0592070 OF OFFICIAL RECORDS.
(LOCATION INDETERMINATE FROM RECORD INFORMATION)

(10) AN EASEMENT GRANTED TO SOUTHERN CALIFORNIA EDISON COMPANY, A CORPORATION, IT'S SUCCESSORS AND/OR ASSIGNS FOR PUBLIC UTILITIES PER DOCUMENT RECORDED MARCH 8, 1999 RECORDING NO.:19990163488, OFFICIAL RECORDS.
(TO BE QUITCLAIMED)

11 AN EASEMENT GRANTED TO SOUTHERN CALIFORNIA GAS COMPANY, A CORPORATION FOR PIPELINES AND CONDUITS TOGETHER WITH METERING PER DOCUMENT RECORDED JULY 29, 1999 RECORDING NO.: 19990553908, OFFICIAL RECORDS.
(INDETERMINATE FROM RECORD INFORMATION)

(12) AN EASEMENT GRANTED TO: COUNTY OF ORANGE FOR STREET AND HIGHWAY PURPOSES PER DOCUMENT RECORDED MAY 2, 2000 RECORDING NO.: 20000226162, OFFICIAL RECORDS.
(TO BE QUITCLAIMED)

(13) AN EASEMENT GRANTED TO MOULTON NIGUEL WATER DISTRICT, IT'S SUCCESSORS AND/OR ASSIGNS FOR SEWER, WATER AND RECLAIMED WATER PIPELINES AND APPURTENANT FACILITIES FOR TRANSMISSION PURPOSES PER DOCUMENT RECORDED SEPTEMBER 20, 2000 RECORDING NO.: 20000491557, OFFICIAL RECORDS.
(TO BE QUITCLAIMED)

14 AN EASEMENT GRANTED TO COXCOM INC., D/B/A COX COMMUNICATIONS ORANGE COUNTY FOR TELECOMMUNICATIONS FACILITIES PER DOCUMENT RECORDED MARCH 9, 2004 RECORDING NO.: 2004000187780, OFFICIAL RECORDS.
(INDETERMINATE FROM RECORD INFORMATION)

15. DECLARATION OF RECIPROCAL EASEMENTS AND COVENANTS PER DOCUMENT RECORDED MARCH 31, 2004 AS INSTRUMENT NO. 2004000265241 OF OFFICIAL RECORDS.
DOCUMENT(S) DECLARING MODIFICATIONS THEREOF RECORDED MARCH 9, 2017 AS INSTRUMENT NO. 20170000098110 OF OFFICIAL RECORDS.
DOCUMENT(S) DECLARING MODIFICATIONS THEREOF RECORDED MAY 13, 2019 AS INSTRUMENT NO. 20190000159033 OF OFFICIAL RECORDS.
(INDETERMINATE FROM RECORD INFORMATION)

(16) AN EASEMENT FOR SEWER AND WATER PURPOSES DEDICATED PER TRACT NO. 14311, FILED OR RECORDED AUGUST 07, 1995 AS BOOK 724, PAGES 49 AND 50, OF TRACT MAPS.
(TO BE QUITCLAIMED)

17 EXCLUSIVE AGREEMENT BETWEEN LANDOWNERS PER DOCUMENT RECORDED DECEMBER 26, 1995 RECORDING NO.: 19950572672, OF OFFICIAL RECORDS.
(BLANKET IN NATURE)

18 EASEMENTS, COVENANTS AND CONDITIONS CONTAINED IN THE DEED FROM SHEA HOMES LIMITED PARTNERSHIP, A CALIFORNIA LIMITED PARTNERSHIP, DOING BUSINESS AS MISSION VIEJO COMPANY, AS GRANTOR, TO WILMINGTON TRUST COMPANY, A DELAWARE BANKING CORPORATION, NOT IN ITS INDIVIDUAL CAPACITY BUT SOLELY AS COTRUSTEE, AND ANTHONY LIU NOT IN HIS INDIVIDUAL CAPACITY BUT SOLELY AS CO–TRUSTEES OF THE FLUOR DANIEL REALTY TRUST 1997, A DELAWARE BUSINESS TRUST, AS GRANTEE, RECORDED DECEMBER 19, 1997 AS INSTRUMENT NO. 19970653373 OF OFFICIAL RECORDS. REFERENCE BEING MADE TO THE DOCUMENT FOR FULL PARTICULARS.
(INDETERMINATE FROM RECORD INFORMATION)

19 A DOCUMENT ENTITLED "QUITCLAIM DEED" RECORDED MARCH 31, 2004 AS INSTRUMENT NO. 2004000265239 OF OFFICIAL RECORDS.

(20) THE TERMS, PROVISIONS AND EASEMENT(S) CONTAINED IN THE DOCUMENT ENTITLED "DECLARATION REGARDING RESERVATION OF ACCESS EASEMENTS" RECORDED DECEMBER 15, 1997 AS INSTRUMENT NO. 19970641908 OF OFFICIAL RECORDS.
(TO BE QUITCLAIMED)

(21) THE RIGHTS, IF ANY, OF A CITY, PUBLIC UTILITY OR SPECIAL DISTRICT TO PRESERVE A PUBLIC EASEMENT IN DISCOVERY STREET AS THE SAME WAS VACATED BY THE DOCUMENT RECORDED DECEMBER 19, 1997 AS INSTRUMENT NO. 19970652771 OF OFFICIAL RECORDS.
(TO BE QUITCLAIMED)

(22) AN EASEMENT FOR COMMUNICATION FACILITIES AND INCIDENTAL PURPOSES GRANTED TO PACIFIC BELL PER DOCUMENT RECORDED DECEMBER 4, 1998 RECORDING NO.: 19980830295, OF OFFICIAL RECORDS.

(23) DECLARATION REGARDING RESERVATION OF ACCESS EASEMENTS PER DOCUMENT RECORDED DECEMBER 19, 1997 RECORDING NO.: 19970653023, OF OFFICIAL RECORDS.
(TO BE QUITCLAIMED)

PROPOSED EASEMENTS:
A INDICATES AN EASEMENT FOR INGRESS AND EGRESS FOR EMERGENCY AND PUBLIC SECURITY VEHICLE PURPOSES TO BE DEDICATED TO THE CITY OF ALISO VIEJO.

B INDICATES AN EASEMENT FOR DOMESTIC WATER PURPOSES TO BE DEDICATED TO MOULTON NIGUEL WATER DISTRICT.

PREPARED BY:
C&V CONSULTING, INC. CIVIL ENGINEERING LAND PLANNING & SURVEYING
9830 IRVINE CENTER DRIVE
IRVINE, CALIFORNIA 92618
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PREPARED FOR:
LENNAR HOMES OF CALIFORNIA, INC.
15131 ALTON PARKWAY
IRVINE, CALIFORNIA 92618

CITY OF ALISO VIEJO
PLANNING DEPARTMENT

VESTING TENTATIVE TRACT MAP NO. 19477

POLARIS PLACE
ALISO VIEJO PARKWAY
ALISO VIEJO, CA 92656

PROJECT NO. LENN-011
SHEET 1 OF 7
PLAN SET: PSD1
DATE: 2/19/26
P:\LENN-011\ENG\SHEETS\TM\TM-01.DWG
XR: #IVAR BIGRDUR

LEGAL DESCRIPTION:

REAL PROPERTY IN THE CITY OF ALISO VIEJO, COUNTY OF ORANGE, STATE OF CALIFORNIA,

DESCRIBED AS FOLLOWS:

LD PARCEL I:

PARCELS 1 AND 2, AS SHOWN ON THAT CERTAIN PARCEL MAP NO. 2015-155, FILED IN THE OFFICE OF THE RECORDER OF THE COUNTY OF ORANGE, STATE OF CALIFORNIA ON DECEMBER 22, 2017, IN BOOK 393 OF PARCEL MAPS, PAGES 31-36.

EXCEPTING THEREFROM ALL PREVIOUSLY UNRESERVED MINERALS, OIL, GAS, PETROLEUM, OTHER HYDROCARBON SUBSTANCES AND ALL UNDERGROUND WATER IN OR UNDER OR WHICH MAY BE PRODUCED FROM THE PROPERTY WHICH UNDERLIES A PLANE PARALLEL TO AND 500 FEET BELOW THE PRESENT SURFACE OF THE PROPERTY FOR THE PURPOSE OF PROSPECTING FOR, THE EXPLORATION, DEVELOPMENT, PRODUCTION, EXTRACTION AND TAKING OF SAID MINERALS, OIL, GAS, PETROLEUM, OTHER HYDROCARBON SUBSTANCES AND WATER FROM THE PROPERTY BY MEANS OF MINES, WELLS, DERRICKS OR OTHER EQUIPMENT FROM SURFACE LOCATIONS ON ADJOINING OR NEIGHBORING LANDS OR LYING OUTSIDE OF THE PROPERTY, IT BEING UNDERSTOOD THAT THE OWNER OF SUCH MINERALS, OIL, GAS PETROLEUM, OTHER HYDROCARBON SUBSTANCES AND WATER, AS SET FORTH ABOVE, SHALL HAVE NO RIGHT TO ENTER UPON THE PROPERTY OR ANY PORTION THEREOF ABOVE SAID PLANE PARALLEL TO AND 500 FEET BELOW THE PRESENT SURFACE OF THE PROPERTY FOR ANY PURPOSE WHATSOEVER, AS RESERVED BY SHEA HOMES LIMITED PARTNERSHIP IN THE DEED RECORDED DECEMBER 19, 1997 AS INSTRUMENT NO. 19970653373 OF OFFICIAL RECORDS AND ALSO LLOYDS BANK OF CALIFORNIA AND IVAR O. HANSON AND LOUISE M. HANSON, HOLDERS OF ALL MINERAL RIGHTS RECORDED SEPTEMBER 30, 1976 IN BOOK 11908, PAGE 567 OF OFFICIAL RECORDS.

APN: 623-481-49

LD PARCEL II:

PARCEL 2, AS SHOWN ON EXHIBIT "B" ATTACHED TO LOT LINE ADJUSTMENT NO. LL 97-054, RECORDED DECEMBER 19, 1997 AS INSTRUMENT NO. 19970652822 OF OFFICIAL RECORDS OF SAID COUNTY.

EXCEPTING THEREFROM ALL PREVIOUSLY UNRESERVED MINERALS, OIL, GAS, PETROLEUM, OTHER HYDROCARBON SUBSTANCES AND ALL UNDERGROUND WATER IN OR UNDER OR WHICH MAY BE PRODUCED FROM THE PROPERTY WHICH UNDERLIES A PLANE PARALLEL TO AND 500 FEET BELOW THE PRESENT SURFACE OF THE PROPERTY FOR THE PURPOSE OF PROSPECTING FOR, THE EXPLORATION, DEVELOPMENT, PRODUCTION, EXTRACTION AND TAKING OF SAID MINERALS, OIL, GAS, PETROLEUM, OTHER HYDROCARBON SUBSTANCES AND WATER FROM THE PROPERTY BY

MEANS OF MINES, WELLS, DERRICKS OR OTHER EQUIPMENT FROM SURFACE LOCATIONS ON ADJOINING OR NEIGHBORING LAND OR LYING OUTSIDE OF THE PROPERTY, IT BEING UNDERSTOOD THAT THE OWNER OF SUCH MINERALS, OIL, GAS, PETROLEUM, OTHER HYDROCARBON SUBSTANCES AND WATER, AS SET FORTH ABOVE, SHALL HAVE NO RIGHT TO ENTER UPON THE PROPERTY OR ANY PORTION THEREOF ABOVE SAID PLANE PARALLEL TO AND 500 FEET BELOW THE PRESENT SURFACE OF THE PROPERTY FOR ANY PURPOSE WHATSOEVER, AS RESERVED BY SHEA HOMES LIMITED PARTNERSHIP IN THE DEEDS RECORDED DECEMBER 19, 1997 AS INSTRUMENT NOS. 19970653372 AND 19970653373, BOTH OF OFFICIAL RECORDS.

ALSO EXCEPTING THEREFROM ALL MINERAL RIGHTS AS RESERVED BY LLOYDS BANK OF CALIFORNIA AND IVAR O. HANSON AND LOUISE M. HANSON, IN DEED RECORDED SEPTEMBER 30, 1976 IN BOOK 11908, PAGE 567 OF OFFICIAL RECORDS.

APN: 623-481-50

LD PARCEL III:

PARCEL 3, AS SHOWN ON EXHIBIT "B" ATTACHED TO LOT LINE ADJUSTMENT NO. LL 97-054, RECORDED DECEMBER 19, 1997 AS INSTRUMENT NO. 1997-0652822 OF OFFICIAL RECORDS OF SAID COUNTY.

EXCEPTING THEREFROM ALL MINERAL RIGHTS AS RESERVED BY LLOYDS BANK OF CALIFORNIA AND IVAR O. HANSON AND LOUISE M. HANSON, IN DEED RECORDED SEPTEMBER 30, 1976 IN BOOK 11908, PAGE 567 OF OFFICIAL RECORDS.

ALSO EXCEPTING THEREFROM ALL PREVIOUSLY UNRESERVED MINERALS, OIL, GAS, PETROLEUM, OTHER HYDROCARBON SUBSTANCES AND ALL UNDERGROUND WATER IN OR UNDER OR WHICH MAY BE PRODUCED FROM THE PROPERTY WHICH UNDERLIES A PLANE PARALLEL TO AND 500 FEET BELOW THE PRESENT SURFACE OF THE PROPERTY FOR THE PURPOSE OF PROSPECTING FOR, THE EXPLORATION, DEVELOPMENT, PRODUCTION, EXTRACTION AND TAKING OF SAID MINERALS, OIL, GAS, PETROLEUM, OTHER HYDROCARBON SUBSTANCES AND WATER FROM THE PROPERTY BY MEANS OF MINES, WELLS, DERRICKS OR OTHER EQUIPMENT FROM SURFACE LOCATIONS ON ADJOINING OR NEIGHBORING LAND OR LYING OUTSIDE OF THE PROPERTY, IT BEING UNDERSTOOD THAT THE OWNER OF SUCH MINERALS, OIL, GAS, PETROLEUM, OTHER HYDROCARBON SUBSTANCES AND WATER, AS SET FORTH ABOVE, SHALL HAVE NO RIGHT TO ENTER UPON THE PROPERTY OR ANY PORTION THEREOF ABOVE SAID PLANE PARALLEL TO AND 500 FEET BELOW THE PRESENT SURFACE OF THE PROPERTY FOR ANY PURPOSE WHATSOEVER, AS RESERVED BY SHEA HOMES LIMITED PARTNERSHIP IN THE DEEDS RECORDED DECEMBER 19, 1997 AS INSTRUMENT NOS. 1997-0653372 AND 1997-0653373, BOTH OF OFFICIAL RECORDS.

APN: 623-481-51

LD PARCEL IV:

PARCEL 5, AS SHOWN ON EXHIBIT "B" ATTACHED TO LOT LINE ADJUSTMENT NO. LL 97-054 RECORDED DECEMBER 19, 1997 AS INSTRUMENT NO. 19970652822 OF OFFICIAL RECORDS OF ORANGE COUNTY, STATE OF CALIFORNIA.

EXCEPTING THEREFROM ALL MINERAL RIGHTS AS RESERVED BY LLOYDS BANK OF CALIFORNIA AND IVAR O. HANSON AND LOUISE M. HANSON, RECORDED SEPTEMBER 30, 1976 IN BOOK 11908, PAGE 567 OF OFFICIAL RECORDS.

ALSO EXCEPTING THEREFROM ALL PREVIOUSLY UNRESERVED MINERALS, OIL, GAS, PETROLEUM, OTHER HYDROCARBON SUBSTANCES AND ALL UNDERGROUND WATER IN OR UNDER OR WHICH MAY BE PRODUCED FROM THE PROPERTY WHICH UNDERLIES A PLANE PARALLEL TO AND 500 FEET BELOW THE PRESENT SURFACE OF THE PROPERTY FOR THE PURPOSE OF PROSPECTING FOR, THE EXPLORATION, DEVELOPMENT, PRODUCTION, EXTRACTION AND TAKING OF SAID MINERALS, OIL, GAS, PETROLEUM, OTHER HYDROCARBON SUBSTANCES AND WATER FROM THE PROPERTY BY MEANS OF MINES, WELLS, DERRICKS OR OTHER EQUIPMENT FROM SURFACE LOCATIONS ON ADJOINING OR NEIGHBORING LAND OR LYING OUTSIDE OF THE PROPERTY, IT BEING UNDERSTOOD THAT THE OWNER OF SUCH MINERALS, OIL, GAS, PETROLEUM, OTHER HYDROCARBON SUBSTANCES AND WATER, AS SET FORTH ABOVE, SHALL HAVE NO RIGHT TO ENTER UPON THE PROPERTY OR ANY PORTION THEREOF ABOVE SAID PLANE PARALLEL TO AND 500 FEET BELOW THE PRESENT SURFACE OF THE PROPERTY FOR ANY PURPOSE WHATSOEVER, AS RESERVED BY SHEA HOMES LIMITED PARTNERSHIP IN THE DEED RECORDED DECEMBER 19, 1997 AS INSTRUMENT NO. 19970653373 OF OFFICIAL RECORDS.

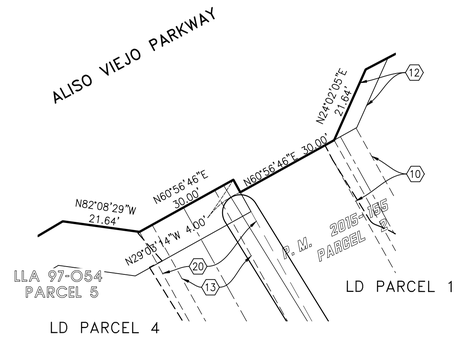
APN: 623-481-52

LD PARCEL V:

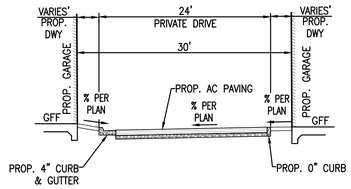
PARCEL 4, AS SHOWN ON EXHIBIT "B" ATTACHED TO LOT LINE ADJUSTMENT NO. LL 97-054 RECORDED DECEMBER 19, 1997 AS INSTRUMENT NO. 19970652822 OF OFFICIAL RECORDS OF ORANGE COUNTY, CALIFORNIA.

EXCEPTING THEREFROM ALL MINERALS, OIL, GAS, PETROLEUM, OTHER HYDROCARBON SUBSTANCES AND ALL UNDERGROUND WATER IN OR UNDER OR WHICH MAY BE PRODUCED FROM THE PROPERTY WHICH UNDERLIES A PLANE PARALLEL TO AND 500 FEET BELOW THE PRESENT SURFACE OF THE PROPERTY FOR THE PURPOSE OF PROSPECTING FOR, THE EXPLORATION, DEVELOPMENT, PRODUCTION, EXTRACTION AND TAKING OF SAID MINERALS, OIL, GAS, PETROLEUM, OTHER HYDROCARBON SUBSTANCES AND WATER FROM THE PROPERTY BY MEANS OF MINES, WELLS, DERRICKS OR OTHER EQUIPMENT FROM SURFACE LOCATIONS ON ADJOINING OR NEIGHBORING LAND OR LYING OUTSIDE THE PROPERTY, IT BEING UNDERSTOOD THAT THE OWNER OF SUCH MINERALS, OIL, GAS, PETROLEUM, OTHER HYDROCARBON SUBSTANCES AND WATER, AS SET FORTH ABOVE, SHALL HAVE NO RIGHT TO ENTER UPON THE PROPERTY OR ANY PORTION THEREOF ABOVE SAID PLANE PARALLEL TO AND 500 FEET BELOW THE PRESENT SURFACE OF THE PROPERTY FOR ANY PURPOSE WHATSOEVER, AS RESERVED BY SHEA HOMES LIMITED PARTNERSHIP IN THE DEED RECORDED DECEMBER 19, 1997 AS INSTRUMENT NO. 19970653373 OF OFFICIAL RECORDS.

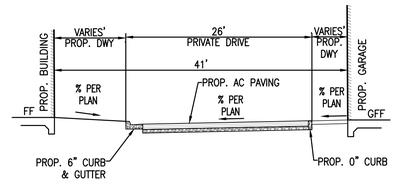
APN: 623-481-53



DETAIL "A"
SCALE: 1"=20'



24' PRIVATE DRIVE
NOT TO SCALE



26' PRIVATE DRIVE
NOT TO SCALE

PREPARED BY:

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

PREPARED FOR:

LENNAR HOMES OF CALIFORNIA, INC.
15131 ALTON PARKWAY
IRVINE, CALIFORNIA 92618

CITY OF ALISO VIEJO
PLANNING DEPARTMENT

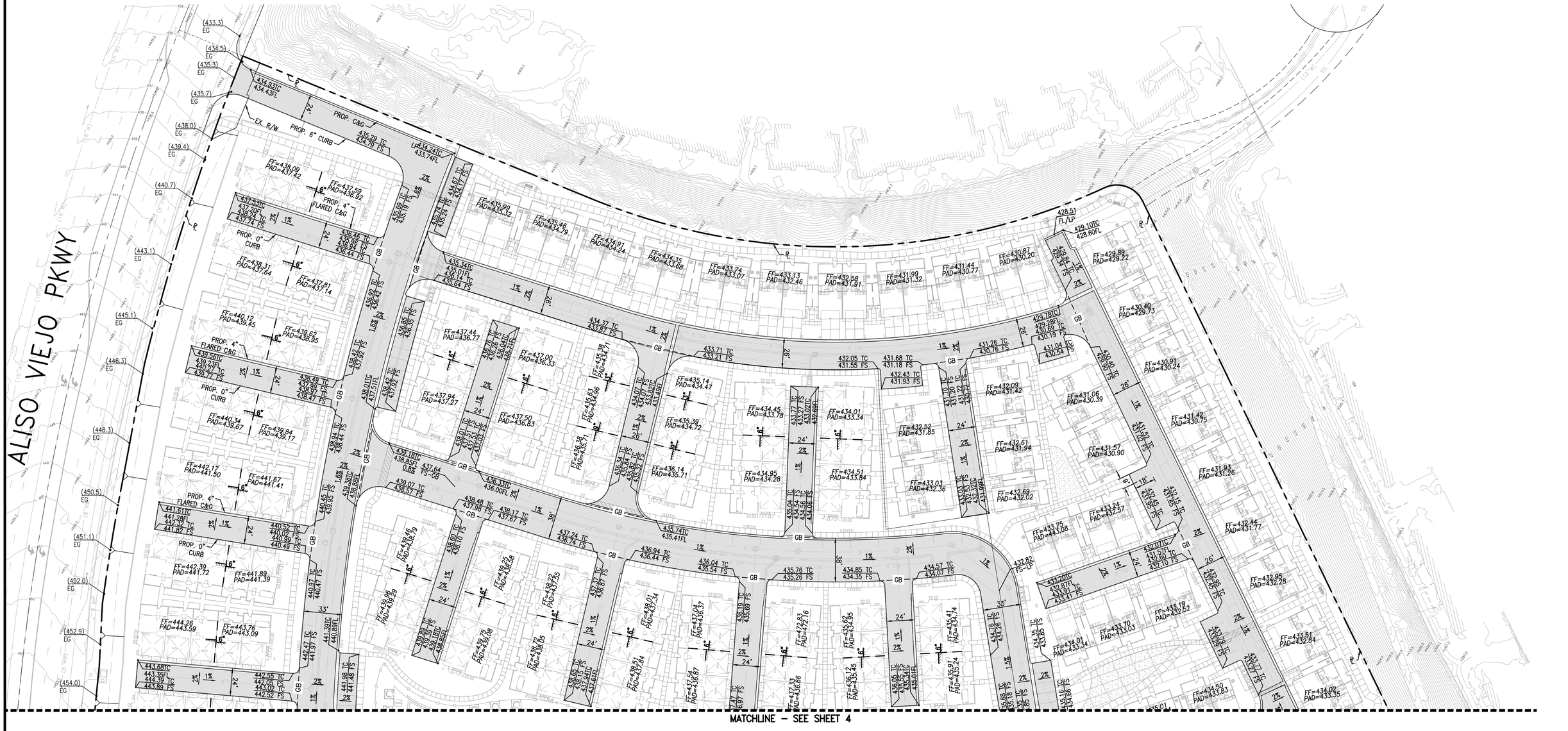
VESTING TENTATIVE TRACT MAP NO. 19477

POLARIS PLACE
ALISO VIEJO PARKWAY
ALISO VIEJO, CA 92656

PROJECT NO.
LENN-011

SHEET
2
OF
7

PLAN SET: PDD
DATE: 2/19/26
P:\LLENN-011\DWG\SHEETS\TTM-19477.DWG
BY: AHAM BAGHDADI



1" = 40'

0 20 40 80

PREPARED BY:	PREPARED FOR:	CITY OF ALISO VIEJO PLANNING DEPARTMENT	PROJECT NO. LENN-011
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	LENNAR HOMES OF CALIFORNIA, INC. 15131 ALTON PARKWAY IRVINE, CALIFORNIA 92618	VESTING TENTATIVE TRACT MAP NO. 19477 PRELIMINARY GRADING PLAN POLARIS PLACE ALISO VIEJO PARKWAY ALISO VIEJO, CA 92656	SHEET 3 OF 7

PLAN SET: PSD1
DATE: 2/19/26
P:\LENN-011\DWG\SHEETS\TM\TM-GS-GRDG.DWG
BY: ANNA BADGUR

MATCHLINE – SEE SHEET 3

ALISO VIEJO PKWY

1" = 40'

0 20 40 80

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	LENNAR HOMES OF CALIFORNIA, INC. 15131 ALTON PARKWAY IRVINE, CALIFORNIA 92618	**CITY OF ALISO VIEJO** PLANNING DEPARTMENT **VESTING TENTATIVE TRACT MAP NO. 19477** POLARIS PLACE ALISO VIEJO PARKWAY ALISO VIEJO, CA 92656	PROJECT NO. LENN-011 SHEET 4 OF 7

P:\LENN-011\DWG\SHEETS\TM\TM-03-GRDNG.DWG
PLAN SET: PSD1
DATE: 2/19/26
BY: RYAN BOGDUR



1" = 40'

0 20 40 80

PREPARED BY:	PREPARED FOR:		PROJECT NO.
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	LENNAR HOMES OF CALIFORNIA, INC. 15131 ALTON PARKWAY IRVINE, CALIFORNIA 92618	**CITY OF ALISO VIEJO** PLANNING DEPARTMENT	LENN-011
		VESTING TENTATIVE TRACT MAP NO. 19477 **PRELIMINARY UTILITY PLAN** POLARIS PLACE ALISO VIEJO PARKWAY ALISO VIEJO, CA 92656	SHEET 5 OF 7

PLAN SET: P201
DATE: 2/19/26
P:\LENN-011\DWG\SHEETS\TM19477.DWG
BY: RYAN BOUCHER

MATCHLINE - SEE SHEET 5

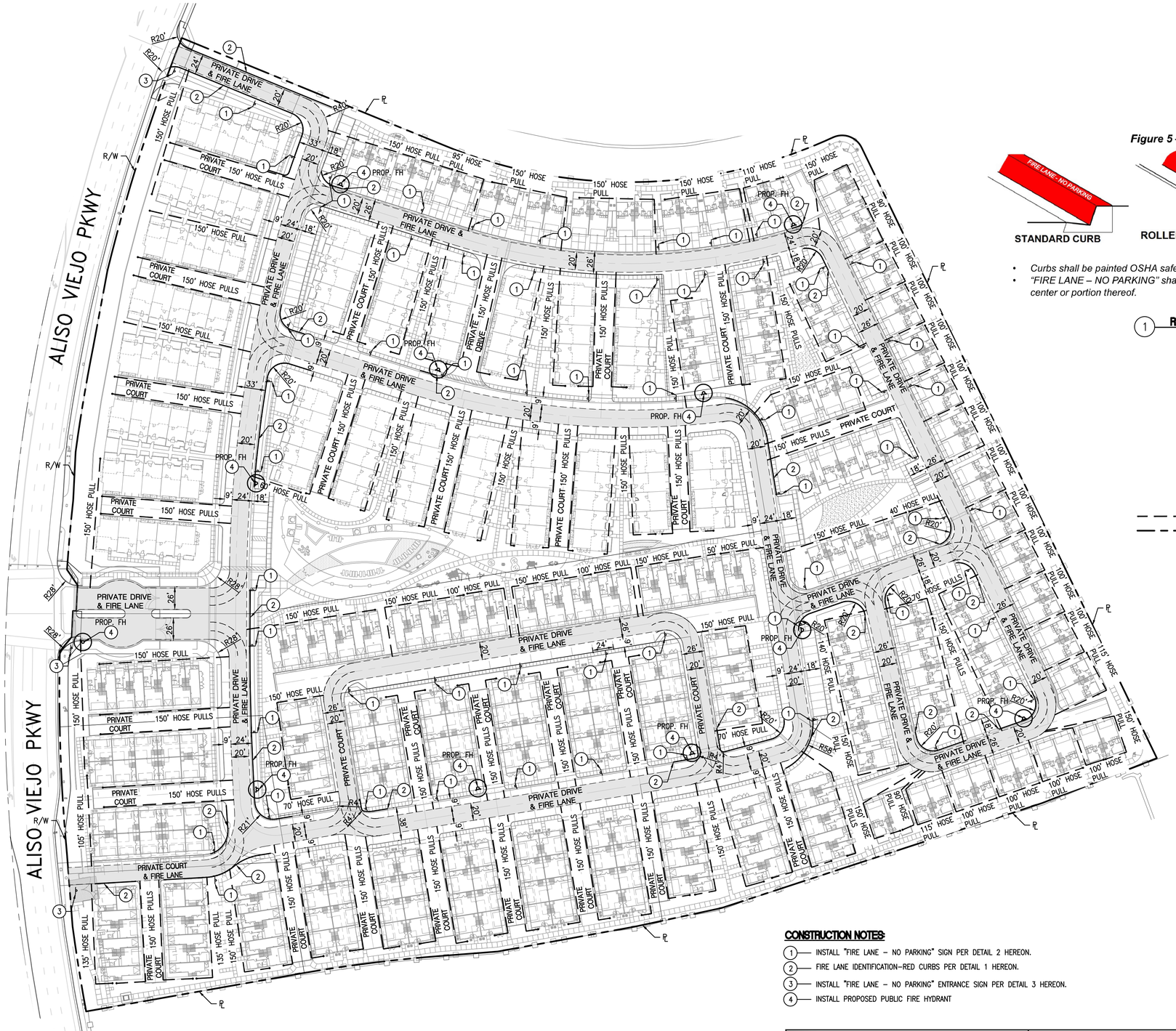


1" = 40'

0 20 40 80

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	LENNAR HOMES OF CALIFORNIA, INC. 15131 ALTON PARKWAY IRVINE, CALIFORNIA 92618	**CITY OF ALISO VIEJO** PLANNING DEPARTMENT **VESTING TENTATIVE TRACT MAP NO. 19477** POLARIS PLACE ALISO VIEJO PARKWAY ALISO VIEJO, CA 92656	PROJECT NO. LENN-011 SHEET 6 OF 7

PLAN SET: PDSI
DATE: 2/19/26
P:\LENN-011\DWG\SHEETS\TM\TM-04.DWG
BY: RYAN BROOKS



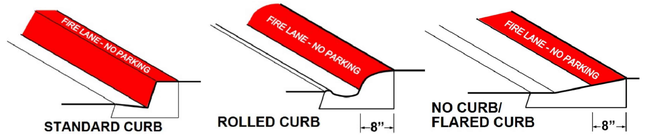
CONSTRUCTION NOTES:

1. INSTALL "FIRE LANE – NO PARKING" SIGN PER DETAIL 2 HEREON.
2. FIRE LANE IDENTIFICATION–RED CURBS PER DETAIL 1 HEREON.
3. INSTALL "FIRE LANE – NO PARKING" ENTRANCE SIGN PER DETAIL 3 HEREON.
4. INSTALL PROPOSED PUBLIC FIRE HYDRANT

PROPOSED EASEMENTS:

A INDICATES AN EASEMENT FOR INGRESS AND EGRESS FOR EMERGENCY AND PUBLIC SECURITY VEHICLE PURPOSES TO BE DEDICATED TO THE CITY OF ALISO VIEJO.

Figure 5 – Fire Lane Identification, Red Curbs



- *Curbs shall be painted OSHA safety red.*
- *"FIRE LANE – NO PARKING" shall be painted on top of curb in 3" white lettering at a spacing of 30' on center or portion thereof.*

1 **RED CURB PAVEMENT MARKING**
NOT TO SCALE

LEGEND

- EXISTING STREET LIGHT
- PROPOSED FIRE HYDRANT
- EXISTING FIRE HYDRANT
- PROPOSED SIGN
- HOSE PULL
- PROPERTY LINE
- FIRE LANE

FH	FIRE HYDRANT
PROP.	PROPOSED
EX.	EXISTING
PL	PROPERTY LINE
R/W	RIGHT OF WAY

Figure 6 – Fire Lane No Parking Signs

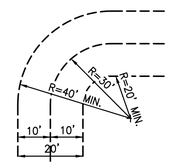


2 **NO PARKING SIGN**

Figure 7 – Fire Lane Entrance Signs



3 **ENTRANCE – NO PARKING SIGN**



MIN. FIRE LANE TURNING RADIUS
TYPICAL DETAIL
NOT TO SCALE

1" = 60'
0 30 60 120

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	LENNAR HOMES OF CALIFORNIA, INC. 15131 ALTON PARKWAY IRVINE, CALIFORNIA 92618	**CITY OF ALISO VIEJO** PLANNING DEPARTMENT **VESTING TENTATIVE TRACT MAP NO. 19477** **PRELIMINARY FIRE ACCESS & HYDRANT LOCATION PLAN** POLARIS PLACE ALISO VIEJO PARKWAY ALISO VIEJO, CA 92656	PROJECT NO. LENN-011 SHEET 7 OF 7

PLAN SET: PSD1
DATE: 2/19/26
BY: ANNA BOCKUR
P:\LENN-011\DWG\SHEETS\TM\TM-DS-FIG.DWG

APPENDIX D.2

OCFCD FACILITY MAP

N 2165945.212
E 600906.889
N 2165944.984
E 622407.126
N 2150145.313
E 600996.665
N 2150145.056
E 622406.939

63
65
64
64
70

LAGUNA BEACH
ALISO VIEJO
LAGUNA WOODS
LAGUNA HILLS
LAGUNA NIGUEL

PROJECT SITE

ALISO WOOD CANYONS
REGIONAL PARK
SOME NUMBERS ON PRIVATE ROADS IN THIS AREA ARE OFF LAGUNA CANYON RD.

Tract 8352

Scale: 1"=600'

NOTICE

This drainage map has been prepared for information purposes only. The location and ownership of facilities have been determined from available information provided by public agencies, but may not be exact. The user of this map is responsible for verifying exact location, ownership and regional versus local character of drainage facilities.
Additional information may be obtained from public plans and recorded deeds.
Character designations shown on this map are for convenience only and are not controlling. Neither the County of Orange nor The Orange County Flood Control District (OCFCD) assume any liabilities for inaccuracy of this map.

Call Alan Vu at (714) 834-5986 to notify Public Facility and Resources Department (PFRD) of additions or corrections.

ORANGE COUNTY FLOOD CONTROL DISTRICT			
BASEMAP OF DRAINAGE FACILITIES IN ORANGE COUNTY			
REVISION: S.GUTIERREZ JAN.16 2007	DATE	SHEET NO. 64	DWG.NO. 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 Greenbelt
- 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
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)	
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)	